



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**THE DHS ACQUISITION WORKFORCE:
THE THREAT'S NOT LEAVING, WHY ARE YOU?**

by

Wayne A. Dumais

September 2018

Thesis Advisor:
Second Reader:

Shannon A. Brown
Raymond D. Jones

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**THE DHS ACQUISITION WORKFORCE: THE THREAT'S NOT LEAVING,
WHY ARE YOU?**

Wayne A. Dumais
Test Area Manager, Department of Homeland Security
BS, Strayer University, 2003
MBA, Strayer University, 2004

Submitted in partial fulfillment of the
requirements for the degree of

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from the

**NAVAL POSTGRADUATE SCHOOL
September 2018**

Approved by: Shannon A. Brown
Advisor

Raymond D. Jones
Second Reader

Erik J. Dahl
Associate Chair for Instruction,
Department of National Security Affairs

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ABSTRACT

To mitigate threats to our nation, homeland security operators depend on the acquisition workforce in the Department of Homeland Security (DHS) to develop, field, and sustain the technologies that help them accomplish their mission. Instability in the acquisition workforce can delay readiness of those technologies, giving adversaries a distinct advantage. This study defines the acquisition workforce, establishes a benchmark for instability, and determines whether the DHS acquisition workforce is unstable.

The study uses data from DHS, industry, and other government sources to determine attrition rates and the primary causes leading to attrition during the last five years. Overlaying additional data, the study includes a comparative analysis and trend identification, and discusses staffing requirements, shortages, time to deliver an initial operational capability, and time to hire as critical contributors to instability. The results show that, based on the established benchmark, the acquisition workforce is stable; however, the same methodology applied at the component level shows that two DHS components are unstable.

Finally, the thesis presents simple recommendations, such as establishing career models for the acquisition workforce, as well as more complex ways forward, such as consolidating the acquisition workforce.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADE	acquisition decision event
ALF	Acquisition Life Cycle Framework
CBP	Customs and Border Protection
DHS	Department of Homeland Security
DoD	Department of Defense
FAI	Federal Acquisition Institute
FEMA	Federal Emergency Management Agency
FOC	full operational capability
FY	fiscal year
GAO	Government Accountability Office
HQ	Headquarters (Directorate for Management, DHS)
IOC	initial operational capability
IT	information technology
LCCE	Life Cycle Cost Estimate
MAOL	Master Acquisition Oversight List
NDI	National Defense Industrial Association
OFPP	Office of Federal Procurement Policy
PARM	Program Accountability and Risk Management
S&T	Science and Technology (Directorate)
TSA	Transportation Security Administration
USCG	United States Coast Guard
USCIS	United States Citizenship and Immigration Service
USSS	United States Secret Service

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EXECUTIVE SUMMARY

The Department of Homeland Security (DHS) faces a plethora of emerging threats from bad actors who wish to disrupt our American way of life. Frontline DHS operators depend on technology and information systems to accomplish their mission. Technologies must continually evolve to counter the emerging threats, which creates capability gaps. The DHS acquisition workforce is responsible for narrowing those gaps by developing, fielding, and sustaining technologies. Each year, DHS spends billions of dollars to develop technologies and information systems to fill capability gaps in its mission space. Unfortunately, as the Government Accountability Office reported, in March 2016 only 11 of 25 DHS programs were on track to meet cost and schedule goals.¹

The problem is that DHS does not truly know if its acquisition workforce is stable. The acquisition workforce's stability affects the department's ability to develop and provide technology capabilities to mitigate threats. This study develops a framework and benchmark for instability within the acquisition workforce using two key data points: attrition and staffing requirements. The study also presents data that explains why employees leave the DHS acquisition workforce.

DHS does not have the ability to determine which personnel directly support acquisition programs. This study assumes that certain job series support acquisition programs, including program managers, management and program analysts, engineers, contracting professionals, operations research analysts, and information technology specialists. This study focuses on DHS components with multiple ongoing, major acquisitions: Customs and Border Protection (CBP), the Federal Emergency Management Agency (FEMA), Immigration and Customs Enforcement (ICE), United States Citizenship and Immigration Service (USCIS), the United States Coast Guard (USCG), the United States Secret Service (USSS), and the Transportation Security Administration (TSA). The

¹Government Accountability Office, *DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, GAO-16-338SP (Washington, DC: Government Accountability Office, March 2016), 2.

Headquarters and Science and Technology Directorates are also included within the scope of this research because of their support to major acquisition programs.

Data for this study originated from multiple sources, including books, reports, journal articles, data sets obtained through the Office of Personnel Management's online Management Cube, and a higher-fidelity data set obtained from the DHS Office of the Chief Human Capital Officer. The study uses Bureau of Labor Statistics information to compare government and industry data. The data, organized by component and fiscal year, was used to calculate attrition rates for each job series, year, and component, resulting in 270 data points. The data are presented in tables and graphs, with discussion of trends between data sets.

To determine instability, the study compares individual acquisition workforce attrition data points to the component's average attrition rate. Acquisition workforce data points higher than the component's average count toward instability. The researcher established a benchmark of stability as 70 percent of all data points being below or equal to the component's average. At the department level, 82—or 30 percent of the 270 available data points—were above the components' combined annual attrition rate. While there is no standard or industry comparison to further define instability, the researcher feels that, based on available data, the DHS acquisition workforce is stable. However, DHS should further investigate potential instability in CBP and ICE; for these components, 60 percent of the data points fall above the component, which indicates instability.

The data show two primary reasons why employees leave the acquisition workforce: retirement and resignation. Employees tend to resign due to insufficient career growth, lack of respect, poor compensation, and unchallenging work.

The study concludes by discussing the pros and cons of implementing five recommendations: establishing an acquisition research effort within DHS, developing career models for the acquisition workforce, conducting exit interviews, making a more robust effort to establish data-driven policy, and consolidating the DHS acquisition workforce. Implementing any or all of these recommendations could increase successful DHS acquisition programs.

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To my kids: I hope you take something away from this experience as well. Nothing comes easy in life; hard work and commitment to tasks are the keys to success. Learning never ends and no one will take care of you better than you later in life. I certainly look forward to spending more time with you both. Finally, to my wife: Without you, I do not exist. Your unconditional support over the last 18 months has been amazing. There are no words to convey how I feel; I thank you and love you.

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I. INTRODUCTION

According to the intelligence community’s 2018 *Worldwide Threat Assessment*, the threat to the American homeland is broader and more dynamic than ever.¹ Smaller terrorist cells have organized, the lone-wolf threat has expanded, and natural disasters coupled with response and recovery efforts continue to strain the nation. The Department of Homeland Security (DHS) provides material and information technology solutions to mitigate the threat. Through a rigorous process, the DHS acquisition community develops solutions to fill capability gaps identified by field operators.

Each year, DHS spends billions of dollars to develop technologies and information systems to fill these capability gaps in its mission space. Unfortunately, as the Government Accountability Office (GAO) reported in March 2016, only 11 of 25 DHS programs were on track to meet cost and schedule goals.² As the GAO reported, these programs’ failures and delays have resulted in schedule delays of 11 months on average, as well as Life-Cycle Cost Estimate (LCCE) increases totaling \$1.7 billion across DHS.³ In a review of 71 major acquisition programs at DHS, a RAND report authored by Jeffrey A. Drezner and Andrew R. Morral highlights “three common root causes for cost growth and schedule delays.”⁴ Sixty-eight of these programs encountered at least one of these root causes:

- “poorly defined, unapproved shifting baseline performance requirements (43 programs)”⁵

¹ Daniel R. Coats, *Worldwide Threat Assessment of the U.S. Intelligence Community* (Washington, DC: Director of National Intelligence, February 2018).

² Government Accountability Office (GAO), *DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, GAO-16-338SP (Washington, DC: Government Accountability Office, March 2016), 2.

³ GAO, 13.

⁴ Jeffrey A. Drezner and Andrew R. Morral, *Reducing the Cost and Risk of Major Acquisitions at the Department of Homeland Security* (Santa Monica, CA: RAND, 2013).

⁵ Drezner and Morral, 3.

- funding instabilities (61 programs)⁶
- “an inadequate supply of trained and qualified acquisition workforce (51 programs).”⁷

Drezner and Morral point out factors that play into these root causes within the Department of Defense (DoD) and other federal agencies, as well as in private industry.⁸ One common issue they highlight is “a lack of stability (high turnover) in both the government and contractor workforce.”⁹ Subsequently, a Congressional Research Service report found that “Chronic and systemic personnel shortfalls and lengthy hiring times jeopardize DHS’s homeland security mission and attrition rates are outpacing hiring in several components of the department.”¹⁰ Furthermore, a 2007 GAO report asserts that a “key challenge DHS has faced is effectively and strategically managing its sizable workforce of nearly 171,000 employees in order to respond to current and emerging 21st century challenges.”¹¹ The 2007 report was titled *DHS’s Actions to Recruit and Retain Staff and Comply with the Vacancies Reform Act*; accordingly, recruitment and retention in the acquisition workforce is the focus of this study.

In 2008, the National Defense Industrial Association analyzed the systemic root causes of program failures, coming to two key conclusions. The first conclusion focused on a lack of early acquisition and gate reviews. The second conclusion regarding program failures highlighted “staff size, training and experience.”¹² The analysis also revealed, “Staffing shortfalls (numbers, skill, and experience) lead to adverse acquisition

⁶ Drezner and Morral.

⁷ Drezner and Morral.

⁸ Drezner and Morral.

⁹ Drezner and Morral.

¹⁰ William Painter and Barbara Schwemle, *Department of Homeland Security Appropriations: FY 2016*, CRS Report No. R44053 (Washington, DC: Congressional Research Service, 2016).

¹¹ Robert Goldenkoff, *DHS’s Actions to Recruit and Retain Staff and Comply with the Vacancies Reform Act*, GAO-07-758 (Washington, DC: Government Accountability Office, 2007), 1.

¹² National Defense Industrial Association Systems Engineering Division (NDIA), *Report on Systemic Root Cause Analysis of Program Failures* (Washington, DC: Department of Defense, 2008).

consequences specifically in the areas of requirements, planning, execution, and expectations.”¹³ The challenge of staff shortages within the acquisition community dates back to the Civil War; in his book *Arming the Eagle*, Wilbur Jones discusses the Ordnance Department, which dealt with personnel shortages and turnover throughout the war.¹⁴ From as far back as the Civil War to as recent as today, acquisition communities have had to manage challenging personnel issues and shortcomings to deliver enhanced capabilities.

A. PROBLEM STATEMENT AND RESEARCH QUESTIONS

The DHS acquisition community, like every workforce, faces challenges associated with attrition. Attrition, as defined by Daniel Sonsino in *HR Magazine*, is the loss, retirement, or death of anyone within an organization’s workforce.¹⁵ Human resources practitioners agree: workforce attrition affects organizations, yet some aspects of attrition—such as death and retirement—are unavoidable. And not all attrition has a negative impact. For example, based on organizational needs, some natural attrition is welcome because it “right-sizes” the organization to meet lower demand in a particular field. Moreover, attrition of poorly performing employees is not a great loss, as it opens the door for new, productive, and potentially more cost-effective employees.

The problem is that DHS does not truly know if its acquisition workforce is stable, which affects the department’s ability to develop and provide technology capabilities to mitigate threats. The hypothesis behind this research is that if there is instability in the acquisition workforce, then acquisition programs are more likely to fail. With this hypothesis in mind, this thesis sought to answer the primary research question: Is there instability in the DHS acquisition workforce? Two sub-questions included: What is the attrition rate of the acquisition workforce at DHS? and What are the primary factors contributing to attrition of the acquisition workforce?

¹³ NDIA, 13.

¹⁴ Wilber D. Jones, Jr., *Arming the Eagle* (Ft. Belvoir, VA: Defense Systems Management College, 1999), 101.

¹⁵ Daniel Sonsino, “Viewpoint: Does Attrition Still Matter?,” *HR Magazine*, October 2017, <https://www.shrm.org/hr-today/news/hr-magazine/1017/Pages/does-attrition-still-matter.aspx>.

B. SIGNIFICANCE TO THE FIELD

With nearly half of all acquisition programs at DHS experiencing cost, performance, or schedule challenges, any efforts to identify and correct shortcomings related to acquisition outcomes must be welcomed by the acquisition community.¹⁶ Two key facts emphasize the significance of this study. First, no business—whether private, commercial, or government—can deny that its workforce is the most important tangible resource for ensuring success. Therefore, the department should see a robust effort to analyze attrition data and understand its impacts on program success. Second, financial expenditures on failed programs are overwhelming. While recommendations identified in this study may take years to implement or mature into measureable utility, the American taxpayer will benefit.

According to the GAO, DHS has historically not delivered successful acquisition programs.¹⁷ Any research that leads to recommendations for improving acquisition outcomes at DHS is certain to draw attention from its executive leadership. Additionally, while attrition has been studied and is currently monitored by DHS, there has never been a clear effort to specifically look at attrition within the acquisition community, or to determine its potential drivers. This study thus provides an academic review of attrition within the DHS acquisition workforce and recommends actions the department can take to improve its long-term stability.

Using open-source and DHS-produced data, the study determines attrition rates of job series that support DHS's acquisition functions, and develops a methodology to determine instability. The data are also used to identify trends and primary causes of attrition within the DHS acquisition workforce, and to determine if this community's attrition rate is similar other organizations. Ultimately, the results of this research may help DHS understand how human capital within the acquisition community is managed and whether or not there is room for improvement.

¹⁶ GAO, *Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress*, GAO-17-346SP (Washington, DC: Government Accountability Office, 2017), 2.

¹⁷ GAO, *Major Program Assessments Reveal Actions Needed to Improve Accountability*, GAO-15-171SP (Washington, DC: Government Accountability Office, 2015), 2.

C. LIMITATIONS AND SCOPE

Organized around a cohort of professionals from the homeland security enterprise, the Naval Postgraduate School's Center for Homeland Defense and Security Studies master's program is 18 months in duration. As a result, this study was time-boxed with a fixed completion date; therefore, time was a severe limitation of this study. The time limitation resulted in a top-level review of attrition data rather than a detailed deep dive and discussion with DHS component human resources offices.

Furthermore, this study does not address or account for any contributions or data associated with the contracted workforce supporting DHS acquisitions. Drezner and Morral address contractor and government turnover in their RAND report; currently, DHS does not track pertinent data about the number of contractors supporting acquisition programs.¹⁸ The value of the contracted workforce at DHS cannot be understated, as it brings skills and years of experience to support program managers across the enterprise. The expertise and experience they bring to the acquisition community is critical to accomplishing the acquisition workforce mission. Due to the lack of data, however, they are not covered in this study.

In 2002, the Homeland Security Act established DHS by combining 22 separate agencies.¹⁹ For the purposes of determining instability, this study only focuses on the major components that have multiple, ongoing acquisition programs, including Customs and Border Protection (CBP), the Federal Emergency Management Agency (FEMA), Immigration and Customs Enforcement (ICE), United States Citizenship and Immigration Service (USCIS), the United States Coast Guard (USCG), the United States Secret Service (USSS), and the Transportation Security Administration (TSA). Two directorates, the Headquarters and Science and Technology (S&T) Directorates, are also included within the scope of this research because of their support to major acquisition programs.

¹⁸ Drezner and Morral, *Reducing Cost and Risk*.

¹⁹ "Creation of the Department of Homeland Security," Department of Homeland Security (DHS), September 24, 2015, <https://www.dhs.gov/creation-department-homeland-security>.

The S&T Directorate is the research and development arm of DHS, responsible for developing technologies for the department's components to counter a plethora of threats. The S&T team tasked most heavily with supporting major acquisition programs is the Capability Development Support Group, which comprises three offices: the Office of Systems Engineering, the Office of Operations and Requirements Analysis, and the Office of Test and Evaluation. The Office of Systems Engineering provides the expertise needed to "apply the scientific principles to practical ends; as the design, construction and operation of efficient and economical structures, equipment and systems."²⁰ For example, this office provides acquisition programs with a technical assessment that evaluates a number of key systems engineering factors within a technology development program. The Office of Operations and Requirements Analysis conducts detailed analyses in support of the components' needs within acquisition programs. Finally, the Office of Test and Evaluation provides oversight and independently assesses the technologies that components are developing before they are fielded to the end user.

The DHS acquisition community encompasses different skill sets and job series. This research only addresses the job series outlined in Table 1.

²⁰ Alexander Kossiakoff et al., *Systems Engineering Principles and Practice*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2011), 3.

Table 1. Occupational Job Series Covered by this Research²¹

Job Series	Series Title	Description
0340	Program Management	Manages or directs, or assists in a line capacity in managing or directing one or more programs
0343	Management and Program Analysis	Serves as an analyst and advisor to management. Evaluates the effectiveness of government programs and operations or the productivity and efficiency of the management of Federal agencies, or both.
0800	Engineering	Advises on, administers, supervises, or performs professional, scientific, or technical work concerned with engineering or architectural projects, facilities, structures, systems, processes, equipment, devices, material or methods.
1102	Contracting	Manages, supervises, performs, or develops policies and procedures for professional work involving the procurement of supplies, services, construction, or research and development using formal advertising or negotiation procedures; the evaluation of contract price proposals; and the administration or termination and close out of contracts.
1515	Operations Research	Manages, supervises, leads, or performs scientific work that involves designing, developing, and adapting mathematical, statistical, econometric, and other scientific methods and techniques.
2210	Information Technology Management	Manages, supervises, leads, administers, develops, delivers, and supports information technology (IT) systems and services.

²¹ Adapted from Office of Personnel Management, *Handbook of Occupational Groups and Families* (Washington, DC: OPM, May 2009), 38, 39, 67, 84, 99, 120.

DHS categorizes its acquisition programs into three separate levels, based primarily on total life-cycle cost. Table 2 identifies the different levels of acquisition programs at DHS, with the cost thresholds for each. DHS currently cannot identify and track the actual number of personnel who directly support only major acquisition programs, identified as level 1 and level 2, according to DHS Acquisition Management Instruction 102–01-001.²² Because there are no actual acquisition workforce staffing numbers, this study takes a broader look at the job series that would typically support the acquisition mission.

Table 2. DHS Acquisition Program Categories²³

Category	Life-Cycle Cost of Program
Major Level 1	≥ \$1B LCCE
Major Level 2	≥ \$300M to ≤ \$1B LCCE
Nonmajor IT (Level 3)	≥ \$50M to ≤ \$300M LCCE
Nonmajor IT (Level 3)	< \$50M
Nonmajor non-IT (Level 3)	< \$300M

D. BACKGROUND

This section provides background on how DHS spends its money and provides clarity on the difference between acquisition and procurement. With such a large percentage of the DHS budget going to the purchasing of goods and services, any instability in its workforce will be a threat to success and could lead to increased cost for the department.

According to the Cato Institute, DHS spent 34 percent of its budget in 2017 on purchases.²⁴ Figure 1 shows a combination of both acquisition programs and procurements funded by DHS.

²² DHS, *Acquisition Management Instruction*, 102-01-001, Rev 01 (Washington, DC: DHS, 2016), 31.

²³ Adapted from DHS, *Acquisition Management Instruction*, 31.

²⁴ Chris Edwards, “Department of Homeland Security,” *Downsizing the Federal Government*, July 12, 2017, <https://www.downsizinggovernment.org/homeland-security>.

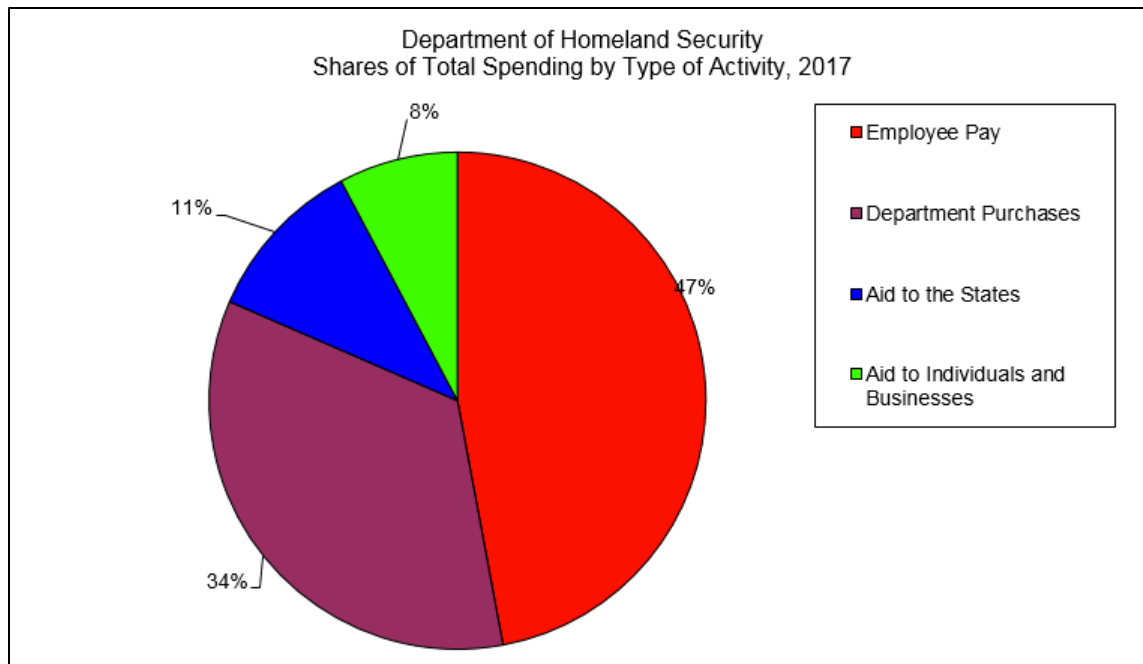


Figure 1. Department of Homeland Security Shares of Total Spending by Type of Activity, 2017²⁵

Often used interchangeably, the terms *acquisition* and *procurement* have different definitions and are governed by different DHS instructions and guidelines. Although for this study, and for the determination of instability, the job series studied support both acquisition and procurement, there is a distinction between the two at DHS. As defined by the 2016 DHS lexicon, a procurement “applies to the process of obtaining goods or services” while an acquisition includes a broader development effort of a system or capability.²⁶ DoD Manual 5000.52 defines acquisition as “The planning, design, development, testing, contracting, production, introduction, acquisition logistics support, and disposal of systems, equipment, facilities, supplies, or services that are intended for use in, or support of, military missions.”²⁷ Figure 2 is derived from DHS Acquisition

²⁵ Adapted from Edwards.

²⁶ DHS, *DHS Lexicon Terms and Definitions*, Instruction Manual 262-12-001-01 (Washington, DC: Department of Homeland Security, 2016), 430.

²⁷ Department of Defense (DoD), *Acquisition Career Development Program*, DoD 5000.52-M (Washington, DC: Department of Defense, 1995), vi.

Management Instruction 102–01-001, which shows the complexity of the capability solution under development, evolving from procurement into a more complex acquisition program.²⁸

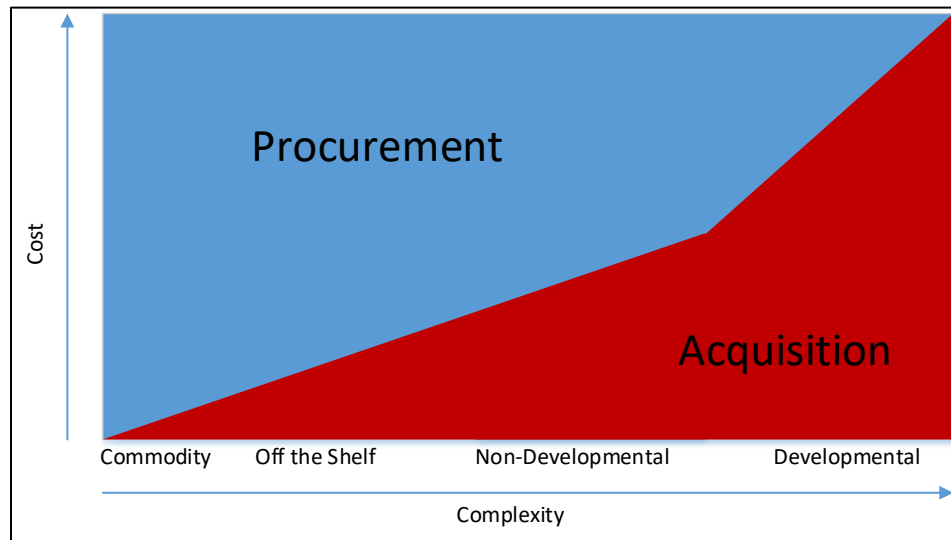


Figure 2. Procurement versus Acquisition

The acquisition community, also known as the acquisition workforce, delivers capability to DHS operators who secure the homeland. They must do so on time, within budget, and while meeting performance requirements. The DHS acquisition workforce includes “government personnel, who perform, supervise, manage, or oversee acquisition functions and activities” and those who perform acquisition support functions, but not those with “general administrative duties and those not directly involved in the acquisition process such as end users, operators, or maintainers of the items being acquired.”²⁹

Several headquarters offices support DHS major acquisition programs and procurement; because they fulfill a critical oversight function in the department, they are included in determination of instability. Key offices include Program Accountability and

²⁸ DHS, Acquisition Management Instruction, 52.

²⁹ DHS, *Acquisition Workforce Membership* (Washington, DC: Department of Homeland Security, 2014), 1.

Risk Management (PARM), Joint Requirements Council (JRC), and the Office of the Chief Procurement Officer (OCPO). PARM’s mission is to “develop and maintain acquisition program management policy.”³⁰ Requirements management falls to the JRC. OCPO oversees and issues procurement regulations, policies, and instructions for the department. OCPO also “manages the Homeland Security Acquisition Institute (HSAI) [which] provides training, professional development, career management, and certification services to DHS acquisition personnel.”³¹

E. RESEARCH METHOD

Significant research to date has focused on the impact of cost, schedule, and performance characteristics on acquisition program success, such as the GAO’s annual review of acquisition programs at DHS. The purpose of this research is to explore the human capital assets within the DHS acquisition community. Factors explored include attrition rates, primary causes of employee loss, and acquisition program breaches within the DHS and DoD acquisition community, as well as in general private-industry fields.

Attrition is the primary metric used in this study to determine instability; understanding attrition is therefore critical to this study. The majority of the literature simply defines attrition as the loss of employees over time:

$$Attrition = \frac{\text{Average number of employees who left}}{\text{Average number of employees who were employed}}.$$

Attrition has been researched on many levels, across multiple industries; however, no fixed definition of instability within the acquisition workforce has been explored. For the purpose of this study, instability is defined as an attrition level within a job series of a component that is higher than the component’s average attrition rate for a given year.

Data for this study came from the internal offices of DHS, published articles, and books related to acquisition program management or workforce development, and reports published by the GAO and other government offices. FedScope, the Office of Personnel

³⁰ DHS, Acquisition Management Instruction, 19.

³¹ DHS, 9.

Management's database, was also queried for data associated with attrition over the last five fiscal years, by component and job series. The FedScope database provides statistical data related to the government's workforce. Subject areas available through the FedScope database include age, education, gender, length of service, grade, occupation, pay plan, salary, location, and agency. FedScope data is searchable by year from 1998 to 2008. Data collected since 2009 is searchable by quarter. Upon request, PARM and the Office of the Chief Human Capital Officer provided data related to staffing levels across the department's acquisition workforce. DHS Policy Directive 102-05, *Major Acquisition Program Staffing Management*, requires component acquisition executives to identify critical acquisition positions and vacancies.

The research process used in this study started with the collection of data, described in the previous paragraph, which was sorted and filtered down by component and job series for each of the years evaluated—fiscal year (FY)13–FY17. The data included annual end-of-year on-the-roll numbers by job series and loss numbers by year, job series, and component; actual attrition values were calculated in Microsoft Excel. Additional data, such as program breaches, were then overlaid on figures to show potential relationships. Once the data were assembled and filtered, and attrition values calculated, they were either plotted on a graph or presented in a table (reviewed in Chapters III and IV). The data were then examined for trends and linkages. One linkage that was investigated, for example, was whether or not there was an increase in the attrition rate or number of resignations or retirements following a program breach. The opposite was investigated as well—if there was a program breach after an increased level of attrition or personnel loss.

To determine if DHS's acquisition workforce is unstable, the researcher determined if the total number of data points for attrition in a job series, by component, was higher than that component's average annual attrition. If it was higher, it counted toward instability; if it was equal to or lower than the component's average attrition, it was considered to be stable. With the components and directorates evaluated over the five-year period, there were 270 available data points to determine instability throughout the DHS acquisition workforce. The methodology was developed with a department-level evaluation in mind; however, it can also be used at the component level. While no research

was found related to workforce instability at DHS, the researcher assesses instability as a result showing 30 percent or more of the data points of a particular job series being higher than the component's overall annual attrition rate. Therefore, the benchmark for determining whether the workforce is stable is 70 percent; in other words, 70 percent of all the data points need to be equal to or below the component's average annual attrition rate. The actual determination of instability is addressed in Chapter V of this thesis.

F. CHAPTER OUTLINE

Chapter II, the literature review, follows a top-down approach: it begins with an acquisition review, which is followed by a discussion of the literature available on the acquisition workforce. The chapter also discusses staffing of the workforce and attrition, identifies gaps in the existing literature, and provides a high-level review of the DHS acquisition life-cycle. Chapter III presents attrition data and analysis for each of the DHS components' acquisition career fields. Chapter IV investigates other contributing factors and actions DHS can take to improve long-term stability in the workforce. The concluding chapter answers the research questions and provides recommendations for DHS to consider.

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II. LITERATURE REVIEW

The literature review conducted for this research followed a funneling model, as shown in Figure 3, beginning with the broad category of DHS acquisition and then narrowing the focus through the acquisition workforce, staffing of the workforce, and finally attrition. Most of the credible and relevant literature on these issues is found in government reports, journal articles, and academic texts. The Government Accountability Office (GAO), Congressional Research Service (CRS), the Departments of Defense (DoD), and DHS authored many of the government reports, guidelines, and instructions. Journal articles from the Defense Acquisition University, *Defense Acquisition Research Journal*, and the International Test and Evaluation Association provided further evidence. Finally, academic texts, including textbooks and theses written by students from various universities, round out the type and categories of literature reviewed.

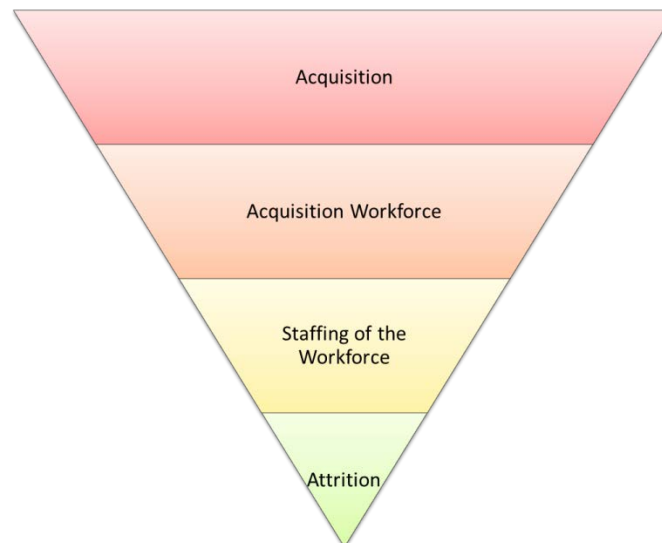


Figure 3. Funneling of the Literature Review

A. ACQUISITION

The primary focus of this research is the acquisition workforce; a general understanding of acquisition and its primary models is therefore important. While the Homeland Security Act of 2002 established DHS, acquisition management within the department did not begin until 2008. Today, DHS acquisition management has grown; Acquisition Management Directive 102–01 now outlines the process DHS uses to manage acquisition efforts and, for FY17, the requested budget was \$40 billion.³²

DHS developed an Acquisition Life cycle Framework (ALF), as shown in Figure 4, which provides a basis for planning and executing acquisitions. The ALF takes a capability gap or mission need through a well-defined, gated process, at the end of which the technology is delivered to the end user, thus closing the capability gap. The framework incorporates proven acquisition practices for program management, systems engineering, contracting, and test and evaluation, along with sustainment and support. The ALF at DHS has four phases: need, analyze/select, obtain, and produce/deploy/support/dispose. Acquisition decision events, or ADEs, are the gates, checkpoints, or milestones of typical project management models. Counting ADE 0, there are six ADEs: 0, 1, 2A, 2B, 2C, and 3.³³ Certain requirements must be met before the process can move to the next ADE, or the next phase of development. This acquisition framework is important to understand upfront; Chapter IV discusses how staffing requirements increase or decrease based on the program’s position in the framework, and how this serves as a potential contributor to instability.

³² DHS, *Acquisition Management Directive*, 102-01 (Washington, DC: Department of Homeland Security, 2015), www.dhs.gov/sites/default/files/publications/01.%20Directive%20102-01%20Acquisition%20Management%20Directive_0.pdf; DHS, *Budget-in-Brief Fiscal Year 2017* (Washington, DC: Department of Homeland Security, 2017).

³³ DHS, *Acquisition Management Instruction*, 38.

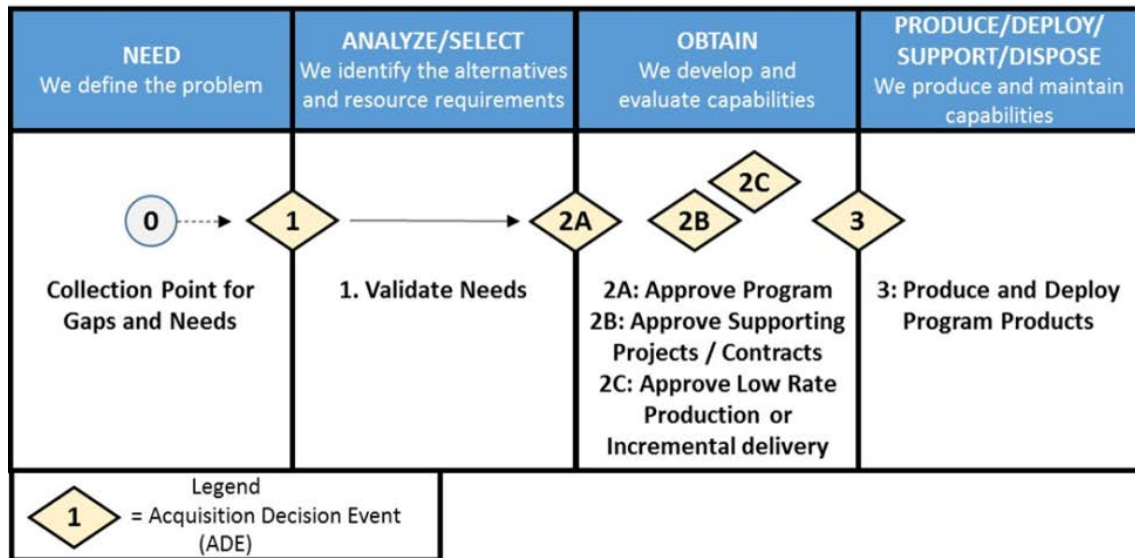


Figure 4. DHS Acquisition Life Cycle Framework³⁴

The DHS acquisition framework is a somewhat simplified model adopted from the DoD. The DoD and DHS literature have many similarities. It is important to understand both departments in order to pinpoint the differences in their terminology and approaches to accomplishing the acquisition mission. Additionally, data and examples in Chapters III and IV are compared to industry in a number of cases. While no research was found to provide a framework for determining instability in private industry or government, many of the same management principles and processes are common if not similar. The Project Management Institute is widely known for the standards it publishes, which are adopted by project and program managers in private industry around the world.³⁵ The Project Management Body of Knowledge, or PMBOK, is the Project Management Institute’s “flagship publication and is a fundamental resource for effective project management in any industry.”³⁶ The book identifies five process areas: 1) initiating, 2) planning, 3) executing, 4) monitoring and controlling, and 5) closing.³⁷ Each one of these process

³⁴ Source: DHS, 38.

³⁵ Project Management Institute, *Project Management Body of Knowledge*, 4th ed. (Newton Square, PA: Project Management Institute, 2008), xxii.

³⁶ Project Management Institute, xxii.

³⁷ Project Management Institute, 43.

groups is in some way represented in both the DHS and DoD acquisition models and policies. The Project Management Institute takes a broader approach, however, to process definition, allowing industry to customize as needed to fit the needs of the organization; DHS and the DoD, on the other hand, specifically outline how processes must be followed. Both departments provide staffing updates at each of the gate reviews.

Various offices within DHS conduct program-staffing assessments at several points throughout the ALF. During the *analyze/select* phase of the ALF, the program manager is responsible for creating a capability development plan—the first acquisition document that requires a staffing plan.³⁸ Subsequent ADE events include staffing plans as well (such as in the program management plan), and staffing plans for subsequent ADE events are used to mitigate program risk.³⁹

1. Acquisition Management

Before making a determination about instability in the acquisition workforce, we must first understand acquisition management and its governance. Most of the literature in this area focuses on best practices, policies, and procedures that the government and private industry use to manage acquisition programs. The purpose of the DoD's *Defense Acquisition Guidebook*, released in 2003, is simply to give the department the guidance needed to conduct its acquisition programs.⁴⁰ A more detailed, step-by-step guide comes from DoD Instruction 5000.02, in which 14 separate enclosures or chapters go into great depth about each step of the processes (DHS's comparable guidance document is Acquisition Management Instruction 102–01, as discussed previously).⁴¹ For its annual budget, the DoD requested \$582.7 billion dollars for FY17—several billion more than the

³⁸ DHS, *Acquisition Program Management Staffing*, Instruction 102-01-006 (Washington, DC: Department of Homeland Security 2016), 6.

³⁹ DHS, 6.

⁴⁰ DoD, *Defense Acquisition Guidebook* (Washington, DC: Department of Defense, 2012), <https://www.dau.mil/guidebooks/Shared%20Documents%20HTML/DoDD%205000.01.aspx>.

⁴¹ DoD, *Operation of the Defense Acquisition System*, Instruction 5000.02 (Washington, DC: Department of Defense, 2015).

previous year, with billions of dollars being spent on an annual basis; thus, the process and procedures outlined for acquisition programs should be geared toward ensuring success.⁴²

2. The Failures

While filling capability gaps and delivering technology to the end users may be the primary goals of any acquisition program, keeping the program on track to meet cost, schedule, and performance baselines is also essential. Once a program exceeds one of these baselines, the department declares a breach or a failed program. This thesis research searched for links between an unstable workforce and breached programs, and attempted to determine if a breached program leads to an unstable workforce. Chapter III identifies the number of program failures for each component during each of the five years covered in this study.

There are many case studies and reports associated with acquisition program failures. For the government, most of these are GAO reports. As previously mentioned, one GAO report identifies that only 11 of 25 major acquisition programs were on track to meet schedule and cost goals in 2016.⁴³ A preceding GAO report—from April 2015—shows similar data and results. The 2016 GAO report also has an appendix, which discusses the objectives, scope, and methodology of the study the GAO undertook to review major acquisition programs at DHS.⁴⁴ The methodology relied heavily on measuring program effectiveness against its established cost and schedule baselines. Negligently, however, the GAO did not address technical performance, which could be a key factor in potential cost and schedule overruns. The report also does not address the root causes of program failures. The GAO has published similar reports outlining DoD acquisition program challenges.

⁴² DoD, *Defense Budget Overview* (Washington, DC: Department of Defense, 2017), http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2017/FY2017_Budget_Request_Overview_Book.pdf.

⁴³ GAO, *DHS Has Strengthened Management*, 2.

⁴⁴ GAO, 56.

Industry failures, on the other hand, are not as well monitored or publicized. Although there are a number of articles that discuss industry failures, their credibility is questionable.

B. ACQUISITION WORKFORCE

Various organizations use different terminology and definitions when discussing the acquisition workforce. While the primary purpose of this research is to identify instability in the DHS acquisition workforce, it is also important to understand how other organizations view the acquisition workforce, as this study compares data from various agencies.

In 1974, Congress began the process of improving the acquisition workforce by creating the Office of Federal Procurement Policy (OFPP), which is responsible for developing government-wide policies. OFPP then established the Federal Acquisition Institute (FAI), the responsibilities and authorities of which are addressed in the Office of Federal Procurement Policy Act in Title 41 of the United States Code.⁴⁵ The FAI's definition of the acquisition workforce, however, has a critical shortcoming. A review of FAI's annual reports reveals that the institute has a narrow focus: it works only with the contracting officers, contracting officers' representatives, and program managers. Acquisition of technologies requires a much broader team to ensure success. Engineers, logisticians, and information technology representatives all play key roles in delivering capabilities to the end user in a timely, cost-efficient manner. Contracting professionals and program managers do not deliver capability in a vacuum; they rely on a team of individuals with unique skill sets to accomplish the acquisition mission. The GAO backs this up in one of its reports, stating, "Having a broader definition is important because it is one method to facilitate agencies' efforts to ensure that training reaches all staff integral to the success of a contract."⁴⁶

⁴⁵ "Legislative Authority," Federal Acquisition Institute, accessed March 21, 2018, www.fai.gov/drupal/about/legislative-authority.

⁴⁶ GAO, *Agencies Need to Better Define and Track the Training of Their Employees*, GAO-02-737 (Washington, DC: Government Accountability Office, July 2002), 8.

The DoD and DHS acquisition workforce includes “contracting, program, technical, budget, financial, logistics, scientific, and engineering personnel.”⁴⁷ The Clinger-Cohen Act required agencies to expand the definition of acquisition workforce, and “OFPP Policy Letter 97–01 identified acquisition workforce positions, in addition to contracting and purchasing specialist, to include contracting officers, Contracting Officer Representatives (CORs) and Contracting Officer Technical Representatives (COTRs).”⁴⁸ Other government agencies have added to the definition as well; for example, the Veterans Administration “includes program managers and procurement clerks”; the Department of Energy accounts for program and property managers; and Health and Human Services and NASA now include procurement clerks.⁴⁹

1. Staffing of the Workforce

Two reports published by the GAO in 2016 and 2017 discuss the staffing of acquisition programs. The reports provide a top-level overview of each program, highlight their staffing requirements, and identify the number of acquisition professionals a program needs to accomplish its mission. This data is presented in the following chapters as a basis of the research.

In “Planning in the Dark: Why Major Engineering Projects Fail,” Philip Lawrence’s and Jim Scanlan’s research focuses on the aerospace industry, which they believe is relevant to all industries.⁵⁰ The authors identify eight critical elements of project success or failure:

- poor initial planning
- lack of clear objectives and deliverables

⁴⁷ GAO, 8.

⁴⁸ GAO, 10.

⁴⁹ GAO, 10.

⁵⁰ Philip Lawrence and James Scanlan, “Planning in the Dark: Why Major Engineering Projects Fail to Achieve Key Goals,” *Technology Analysis & Strategic Management* 19, no. 4 (2007): 509.

- lack of understanding of dependencies
- inadequate resource allocation
- poor risk analysis
- poor change management
- lack of “buy-in” from stakeholders
- poor understanding of priorities.⁵¹

Five of these factors are tied to instability. One outlier is change management, which is more commonly referred to as configuration management and is not directly tied to the workforce (other than the need for configuration analysts in programs). The second outlier deals more closely with contract objectives and deliverables, and product of the workforce—it is not a factor in the determination of instability. The final element not tied to the discussion of instability is the lack of buy-in, which typically includes communications with the customer or end users in the requirements gathering stages, or design reviews during development of a technology system.

Poor initial planning, lack of understanding about dependencies, inadequate resource allocation, poor risk analysis, and poor understanding of priorities all link back to workforce instability. Poor initial planning can mean human capital requirements were not forecasted adequately, which has a direct relationship to this study. A lack of dependencies and resource allocation applies to human capital assets as well—the program manager needs the right people in the right place at the right time to perform the acquisition mission; failure of planning leads to potential instability. The final element’s responsibility lies with the program manager, whose job is to clearly understand human capital priorities; if the project is managed well and the priorities are understood, instability will be minimized.

Additionally, “Department of Defense Acquisition Program Terminations: Analysis of 11 Program Management Factors” by Patrick Clowney, Jason Dever, and

⁵¹ Lawrence and Scanlan, 509.

Steven Stuben highlights 10 predictive factors tied to acquisition program success.⁵² The fifth of the ten factors deals with “personnel and recruitment” considerations.⁵³ With a number of pieces of literature discussing the need to address human capital in an acquisition program, this thesis further explores the subject of human capital within DHS acquisition programs.

Only one piece of literature defined the minimum timeframe any professional should be required to serve in an acquisition position. DHS Instruction 102–01-006, *Acquisition Program Management Staffing*, “recommends program managers serve a minimum of four years, or until the next ADE.”⁵⁴ The instruction suggests this timeframe due to the significance of the program manager position. Additionally, this commitment allows for leadership continuity through acquisition events, ideally leading to improved acquisition outcomes. The four-year tenure appears reasonable; the Bureau of Labor Statistics identified the median tenure of 4.2 years in 2016 across the combined private industry and public service.⁵⁵ Additionally, the Bureau of Labor Statistics declared, “Among the major occupations, workers in management, professional, and related occupations had the highest median tenure (5.1 years) in January 2016.”⁵⁶ The program manager was the only position identified in a review of DHS literature to have a recommended term of service. Other critical positions, such as the systems engineer, test manager, and contracting officer, have no recommended term of service. This shortcoming suggests an overemphasis on the criticality of the program manager and an under-emphasis on the need for a team of professionals to deliver programs on time and within budget, and that meet performance objectives.

⁵² Patrick Clowney, Jason Dever, and Steven Stuben, “Department of Defense Acquisition Program Terminations: Analysis of 11 Program Management Factors,” *Acquisition Research Journal* 23, no. 3 (July 2016): 306.

⁵³ Clowney, Dever, and Stuben, 306.

⁵⁴ DHS, *Acquisition Program Management Staffing*, 8.

⁵⁵ “Employee Tenure in 2016,” Bureau of Labor Statistics, September 22, 2016, <https://www.bls.gov/news.release/tenure.nr0.htm>.

⁵⁶ Bureau of Labor Statistics.

By comparison, the DoD acquisition community is governed by the Defense Acquisition Workforce Improvement Act (DAWIA), approved in 1991. The DAWIA outlines which acquisition positions are considered part of the acquisition community, as well as the training and certification requirements for each of the acquisition disciplines.⁵⁷

2. Attrition

Attrition is the primary metric used in this study to evaluate instability in the acquisition workforce. One of the leading causes and future concerns of attrition comes from the aging government workforce. A significant amount of literature focuses on the soon-to-retire government workforce and the loss of experience and knowledge that will follow. Yvonne Kochanowski discusses the history of government retirement in the *Journal of Health and Human Services Administration*. The history starts in the mid-1970s, when it was projected that almost half of government executives and middle managers were eligible to retire. In the 1990s, Kochanowski explains, the GAO proposed a plan of trial retirements to sustain the institutional knowledge of the government, allowing transition of knowledge to the younger workforce. Then, in the early 2000s, census data from 2006 showed that “69% of federal workers, 60% of state workers and 64% of local government workers were over the age of 40.”⁵⁸

C. GAPS IN THE LITERATURE

A plethora of literature exists when it comes to acquisition in general. Currently, the majority of literature and data on the government side comes from the DoD acquisition community, resulting from its long tenure when compared to DHS. As DHS continues to age, the literature and data available for research will certainly grow; the department maintains a status of high visibility compared to other government organizations.

The available literature about the acquisition workforce once again was focused on the DoD and its long-term experiences. One gap identified in the literature review was the

⁵⁷ “Legal Information Institute,” Cornell Law School, July 17, 2018, <https://www.law.cornell.edu/uscode/text/10/subtitle-A/part-II/chapter-87>.

⁵⁸ Yvonne J. Kochanowski, “Human Capital Management in Government: Replacing Government Retirees,” *Journal of Health and Human Services Administration* 34, no. 1 (2011): 85–108.

correlation between acquisition workforce effectiveness and acquisition program outcomes. In other words, is there an impact to acquisition programs resulting from a marginally staffed or marginally qualified workforce? No literature exists regarding career-development models or career paths for the DHS acquisition workforce, which would support human capital retention. And while recent GAO reports highlight staffing requirements and shortages, no data exist to describe why those vacancies exist or what actions are being taken to fill them.

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III. DATA

This chapter presents attrition data for the job series most likely to support acquisition programs at DHS. Those series, presented in detail within Chapter I, Table 1, are 0340 (program management), 0343 (management and program analysis), 0801 (engineering), 1102 (contracting), 1515 (operational research analyst), and 2210 (information technology specialist). In 2017, the DHS chief procurement officer reported an acquisition workforce of 12,865 professionals supporting the acquisition mission.⁵⁹ Figure 5 provides a distributed breakdown of the acquisition workforce by DHS component.⁶⁰

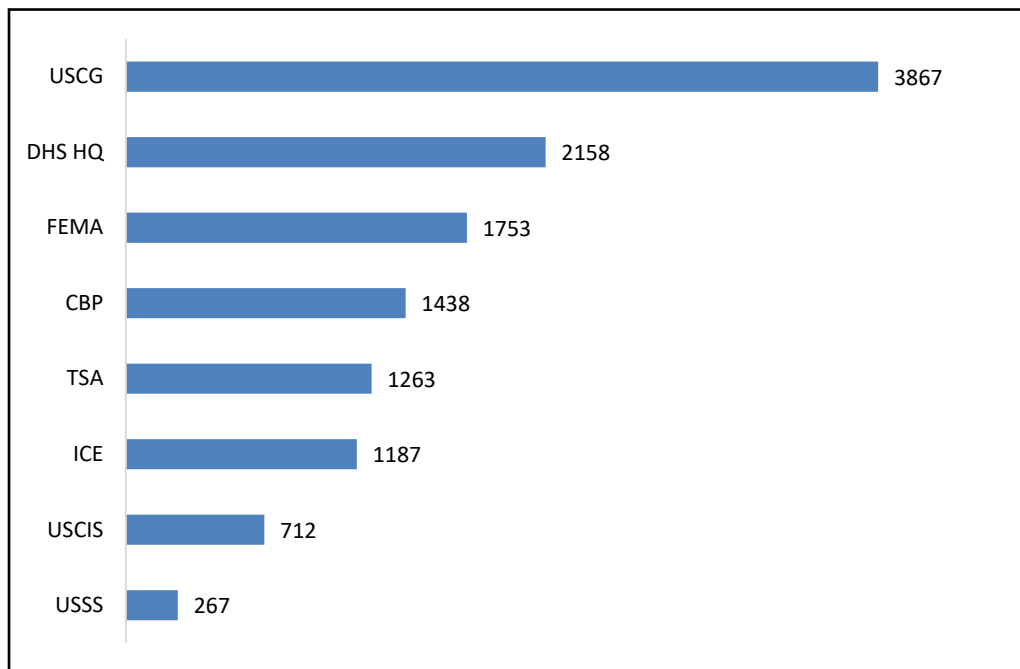


Figure 5. DHS Total Acquisition Workforce⁶¹

⁵⁹ DHS Office of the Chief Procurement Officer, *Acquisition Workforce Strategic Human Capital Plan Fiscal Years 2013–2017* (Washington, DC: Department of Homeland Security, 2017).

⁶⁰ DHS Office of the Chief Procurement Officer.

⁶¹ Adapted from DHS Office of the Chief Procurement Officer.

Each section of this chapter starts with a brief description of the component and an overview of the component's acquisition portfolio, which helps identify the types of commodities the component develops. This information is important because the development of an information technology (IT) system presents different challenges than the development of, say, a border security system. This difference is key in looking at the component's data, as an IT system will appear to lack the 0801 series (engineer) yet will have an increase in the number of 2210 (information technology specialist). Likewise, a border security program within CBP may have an increased number of 0801 engineers managing the development of sensor technologies and not have as many 2210 information technology specialists as an ICE program developing the immigration IT system.

Each section then describes the data for each component. The first table presented in each section shows the attrition rates for each of the job series over the last five years. The last row of data on each of those tables presents the component's overall attrition rate, which accounts for all job series staffed by that particular component. The next figure displayed for each component shows the total number of employees for each job series, during each of the five years, and the attrition rate for the series during each year. Since attrition is determined by dividing the number of employees who left by the total number of employees, job series with low numbers may appear to have high attrition rates—which is the reason actual on-roll numbers are presented in this study. The final figure in each section describes how many employees left the component, and why they did so. This figure also identifies the program breaches the component experienced in each fiscal year. The intent of highlighting the program breaches is to identify any human capital trends within the workforce that lead to or result from a program breach. The components' data are presented in order from the largest acquisition workforce to the smallest. Figures and tables are presented for each of the components studied, regardless of any trends identified or significant discussion, for comparison and completeness purposes.

A. U.S. COAST GUARD

According to its website, “The mission of the United States Coast Guard is to ensure our Nation’s maritime safety, security and stewardship.”⁶² In order to accomplish its mission, the USCG relies on a number of assets in the field. As listed in DHS’s Major Acquisition Oversight List (MAOL), dated April 2018, a dozen of these systems are major acquisition programs under development by the USCG according the DHS’s Major Acquisition Oversight List (MAOL) dated April 2018, which include:

- 47 foot Motor Lifeboat Service Life Extension Program (MLB SLEP)
- C4ISR
- Fast Response Cutter (FRC)
- H-65 Helicopter Conversion – Sustainment Projects
- Long Range Surveillance Aircraft (C-130H-J)
- H-60 SLEP Medium Range Recovery Helicopter (MRR)
- Medium Range Surveillance Aircraft (MRS)
- National Security Cutter (NSC)
- Nationwide Automatic Identification System (NAIS)
- Offshore Patrol Cutter (OPC)
- Polar Ice Breaker
- Waterways Commerce Cutter (WCC).⁶³

⁶² “Missions,” United States Coast Guard, accessed April 26, 2018, <https://www.overview.uscg.mil/Missions/>.

⁶³ DHS, *Master Acquisition Oversight List* (Washington, DC: Department of Homeland Security, April 2018), 5.

The first table in each of the component’s data sections is common throughout this chapter. The table presents attrition values calculated for each of the study years and each job series in the scope of this study. Furthermore, the component’s calculated attrition rate, which includes all job series, is provided for each fiscal year. Highlighted data cells indicate an attrition value that is greater than the component’s attrition value, which is later used to calculate instability. For the USCG, this information is shown in Table 3.

Importantly, as shown in Table 3, in FY13 three of the six USCG job series investigated showed attrition rates above the component average. Also, the 1102 series experienced higher attrition rates than the component average in all years except FY13.

Table 3. USCG Attrition Rates by Discipline⁶⁴

Series	FY13	FY14	FY15	FY16	FY17
340	0.11	0.05	0.05	0.06	0.02
343	0.06	0.05	0.06	0.06	0.06
801	0.07	0.08	0.1	0.06	0.04
1102	0.08	0.12	0.13	0.13	0.1
1515	0.12	0.04	0.07	0.07	0
2210	0.1	0.08	0.06	0.05	0.06
Component	0.08	0.11	0.1	0.1	0.06

Note: Red cells indicate an attrition rate higher than the component average.

Figure 6 presents the actual end-of-year number of personnel on roll for each of the fiscal years and each job series—these are the bars on the graph with the numeric values on the primary axis on the left-hand side; a similar figure will appear in each section of this chapter. The dots are the attrition values presented in Table 3, for each job series and year of the study, utilizing the secondary axis values on the right-hand side of the figure.

Figure 6 identifies a steep decline in the attrition rate of 0340, program analysts, in the USCG between FY13 and FY17, from 11 percent to 2 percent. Meanwhile, the attrition rate for 0343 program managers appears to hover around 6 percent over the period of

⁶⁴ Adapted from DHS Office of the Chief Human Capital Officer, “FY13–FY17 On-Roll Various Job Series” (unpublished dataset, May 1, 2018).

review. The attrition rate varied; it was 10 percent in FY15 and only 4 percent in FY17 for engineers, while the operational research analyst also saw a shift—ranging from 12 percent in FY13 to 0 percent in FY17. Finally, one of the largest job series being evaluated for the USCG, the 2210 series, saw a decline in both attrition and total employees from the start of FY13, with a gradual decline in attrition rate from 10 percent in FY13 to 5 percent in FY16 and only a moderate 1-percent increase in FY17. It would be helpful to know what led to the decrease in attrition within this job series and what the Coast Guard did or changed to effect such a change.

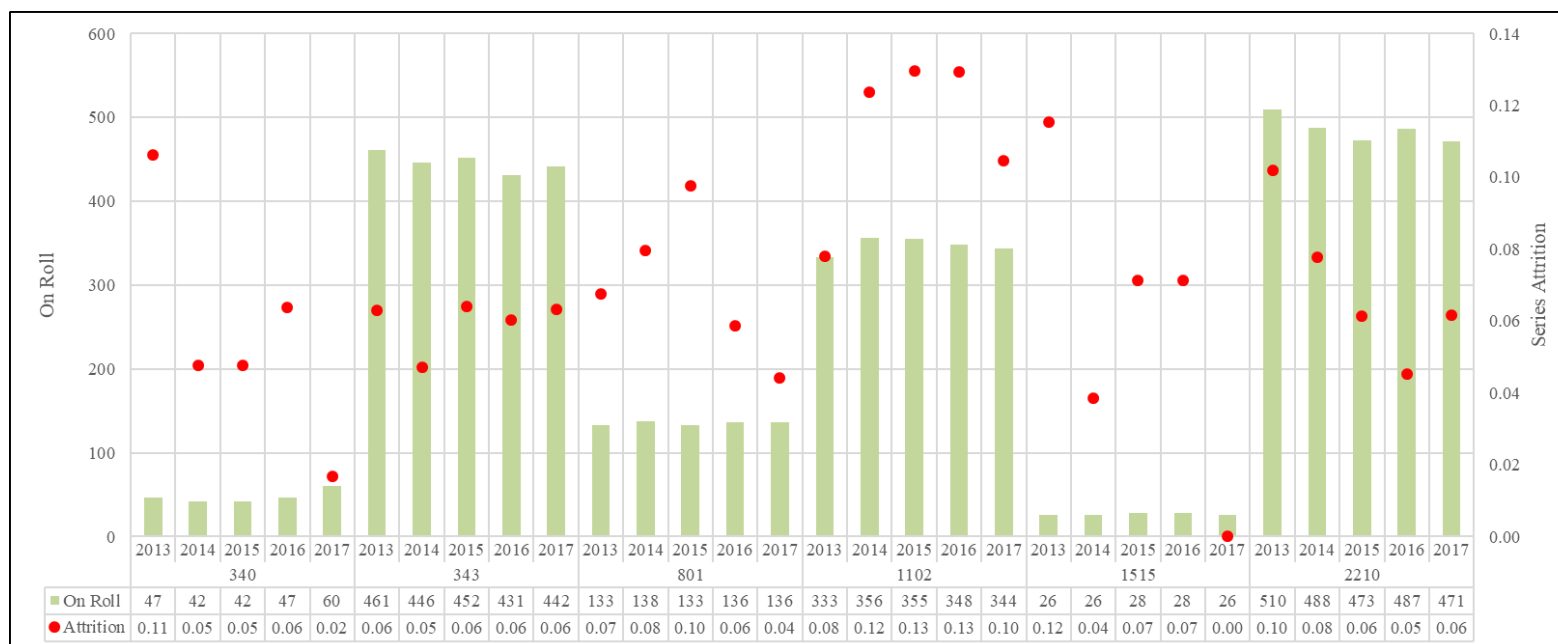


Figure 6. USCG—End of FY on Roll by Series and Series Attrition Rates⁶⁵

⁶⁵ Adapted from DHS Office of the Chief Human Capital Officer.

Figure 7—like the final figure in each forthcoming section—identifies the primary causes of attrition for the component (in this case, the USCG), with component breaches overlaid to determine if there are any links between the two data points. The data bars show the primary reasons why employees left that particular job series in a particular year. These bars correspond to the primary axis on the left side of the figure for numeric values. On the secondary access, with the numeric values on the right side of the figure, are dots that show the number of program breaches the component experienced in a given year.

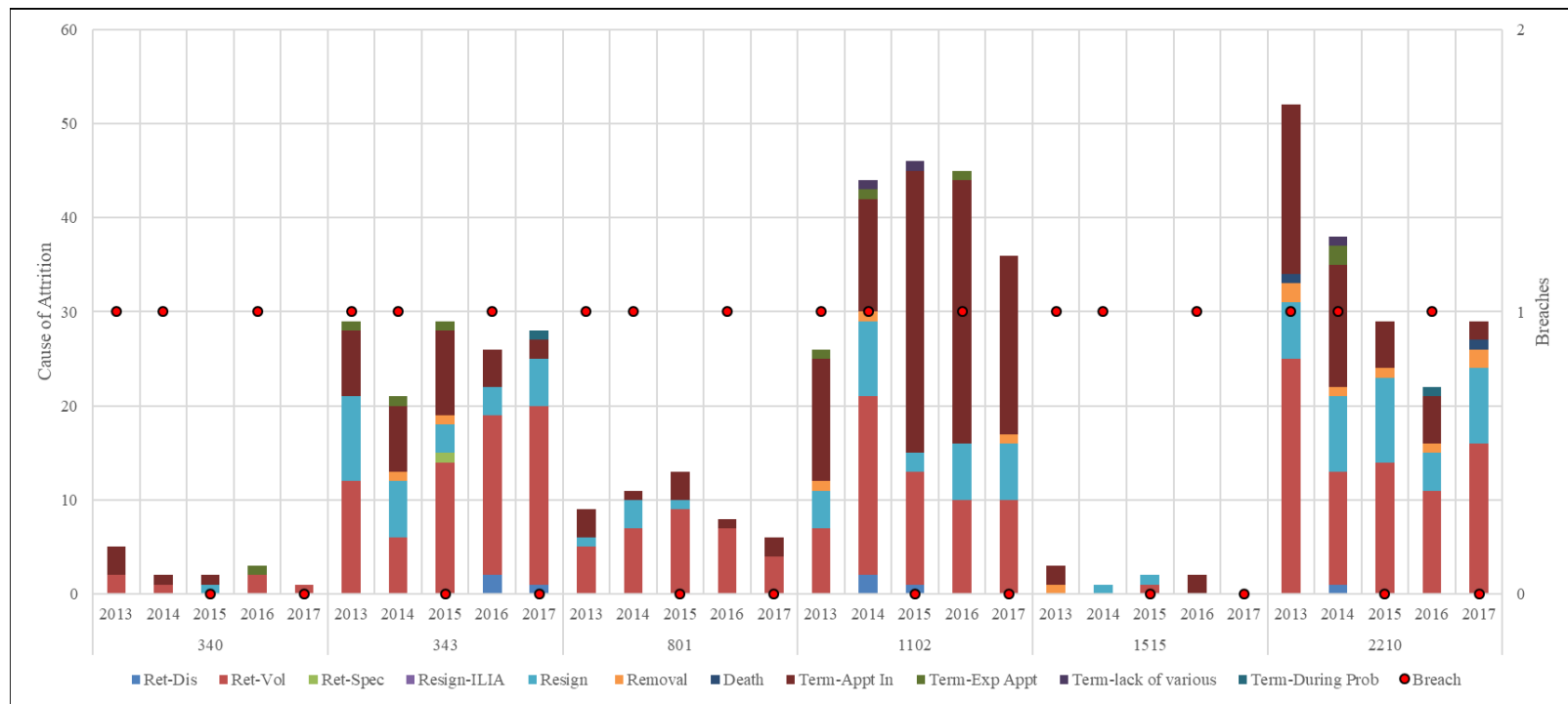


Figure 7. USCG—Primary Cause of Reported Attrition with Component Breaches⁶⁶

⁶⁶ Adapted from DHS Office of the Chief Human Capital Officer.

Job series 1102, contracting specialists, saw an increase in total number of losses—from 26 to 44 between FY13 and FY14. The primary cause of this increase was voluntary retirements. In FY13, the 2210 series experienced its highest loss of personnel over the period evaluated, and also saw a decline in total personnel loss over the following three years. Voluntary retirements were the leading cause of attrition for this job series as well. Over the last decade, the topic of the government’s aging, retirement-eligible workforce has been highly publicized. These findings from two separate job series, in different years, drive the question, What pushes an individual to a point of submitting a retirement package in the government?

B. DIRECTORATE FOR MANAGEMENT

According to the DHS website,

The Directorate for Management is responsible for budget, appropriations, expenditure of funds, accounting and finance; procurement; human resources and personnel; information technology systems; facilities, property, equipment, and other material resources; and identification and tracking of performance measurements relating to the responsibilities of the Department.⁶⁷

Similar to the S&T Directorate, the Directorate for Management’s role in acquisition is primarily assistance, engagement, and oversight. Also referred to as Headquarters (or HQ), this directorate is the designated developing agency for two major acquisition programs listed on the MAOL, the Financial Systems Modernization (TRIO), and St. Elizabeth’s Headquarters’ consolidation construction programs.⁶⁸

The data in Table 4 raise a concern with two Headquarters jobs series. First, 0801, engineer, has attrition rates higher than the component as a whole in both FY14 and FY15, with the attrition rate more than double that of the component in FY15. Second, 1515, operational research analyst, also had higher-than-component averages in FY13 and FY14, at 12 percent and 25 percent, respectively.

⁶⁷ “Operational and Support Components,” DHS, March 7, 2018, <https://www.dhs.gov/operational-and-support-components>.

⁶⁸ DHS, Master Acquisition Oversight List, 2.

Table 4. HQ Attrition Rates by Discipline⁶⁹

Series	FY13	FY14	FY15	FY16	FY17
340	0.05	0.13	0.1	0.05	0.21
343	0.05	0.04	0.09	0.09	0.05
801	0.09	0.1	0.25	0.08	0.07
1102	0.05	0.08	0.11	0.09	0.1
1515	0.12	0.25	0	0	0.09
2210	0.1	0.07	0.1	0.1	0.09
Component	0.09	0.09	0.12	0.11	0.09

Note: Red cells indicate an attrition rate higher than the component average.

Figure 8 shows why the attrition rates are so high for both the 0801 and 1515 series: simply put, the on-the-roll numbers were low. And, based on the results of Figure 9, series 0343, program management, warrants discussion. First, a steady increase in voluntary retirements between FY14 and FY16 caused the attrition rate to increase to 9 percent in both FY15 and FY16. Second, resignations almost doubled—from 7 to 13—in FY15. Third, the component experienced an average of 16 “termination-appt ins,” which the Office of Personnel Management defines as “separation action[s] initiated by either the employee or the agency when the employee (or group of employees) moves from one agency to another agency.”⁷⁰ Finally, in FY16, 20 personnel from the program management community on temporary appointments reached the end of their obligation.

⁶⁹ Adapted from DHS, Office of the Chief Human Capital Officer, “On-Roll Job Series.”

⁷⁰ Office of Personnel Management, “Separations by Other than Retirement,” in *The Guide to Processing Personnel Actions, through Update 72* (Washington, DC: Office of Personnel Management, 2017), 31-4, <https://www.opm.gov/policy-data-oversight/data-analysis-documentation/personnel-documentation/processing-personnel-actions/gppa31.pdf>.

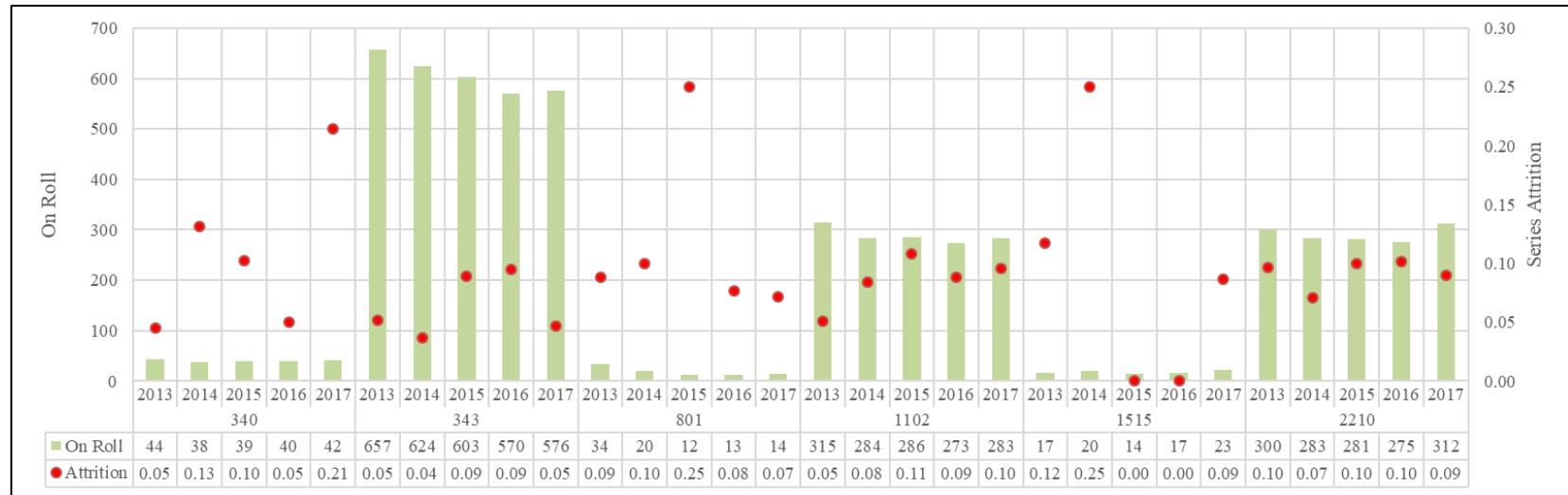


Figure 8. Headquarters—End of FY on Roll by Series and Series Attrition Rate⁷¹

⁷¹ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

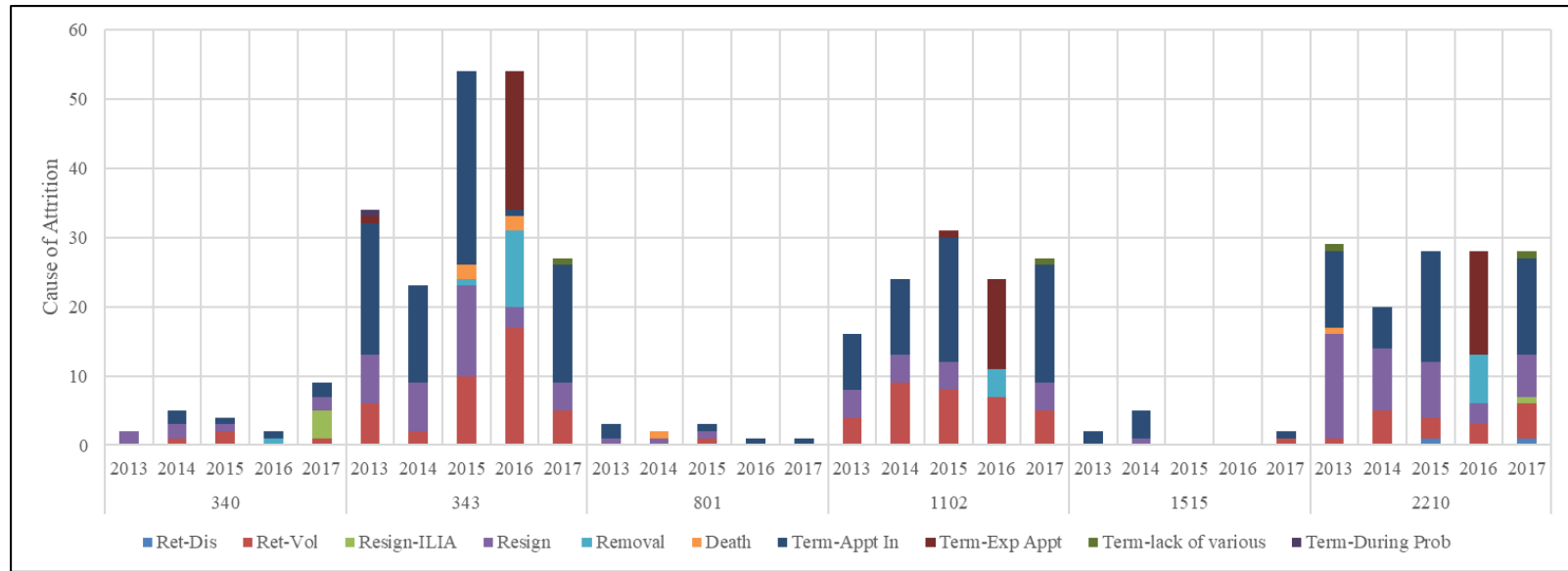


Figure 9. Headquarters—Primary Cause of Reported Attrition⁷²

⁷² Adapted from DHS Office of the Chief Human Capital Officer.

C. SCIENCE & TECHNOLOGY DIRECTORATE

The Science & Technology Directorate (S&T) is the research and development arm of DHS. As mentioned in Chapter I, S&T has two primary offices that support major acquisition programs; both reside under the Capability Development Support Group. First is the Office of Test and Evaluation, which is the department’s performance assessment team, responsible for determining if systems under development are effective, suitable, and secure. The second is the Office of Systems Engineering, which provides technical assessments, requirements development expertise, and human factors engineering support to programs throughout the acquisition life-cycle. The National Biological and Agriculture Facility—under construction in Manhattan, Kansas—is the only major acquisition program for which S&T is currently accountable. As a facility construction project, it is not included in the discussion of program breaches.⁷³ The majority of acquisition support provided to all of the DHS components from S&T comes in the form of assistance, engagement, and oversight; therefore, program breaches are not identified in Figure 11.

FY14 was a year of higher attrition rates at S&T, as shown in Table 5, with half of the job series experiencing higher attrition rates than the component as a whole. The low attrition rates shown in Table 5 and Figure 11 suggest employees at S&T are satisfied with their current work.

Table 5. S&T Attrition Rates by Discipline⁷⁴

Series	FY13	FY14	FY15	FY16	FY17
340	0.17	0.11	0.17	0	0.04
343	0.05	0.1	0.05	0.05	0.06
801	0.06	0.06	0.13	0.07	0.04
1102	0	0	0	0	0
1515	0	0.13	0.07	0.05	0.06
2210	0.05	0.21	0.06	0.14	0.04
Component	0.08	0.10	0.10	0.09	0.06

Note: Red cells indicate an attrition rate higher than the component average.

⁷³ DHS, Master Acquisition Oversight List, 3.

⁷⁴ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

Figure 10 highlights S&T's primary mission, research and development; it has the most engineers and operational research analysts on roll. Understandably, series 0801, engineering, is the highlight of Figure 11. An increase in resignation, voluntary retirements, and the end of temporary appointments in FY15 are the causes of the increased attrition. Because DHS cannot identify personnel who directly support the acquisition mission—and because we can speculate that the majority of engineers reside at S&T—the spike is unlikely to be the result of, or a contributing factor in, any breaches.

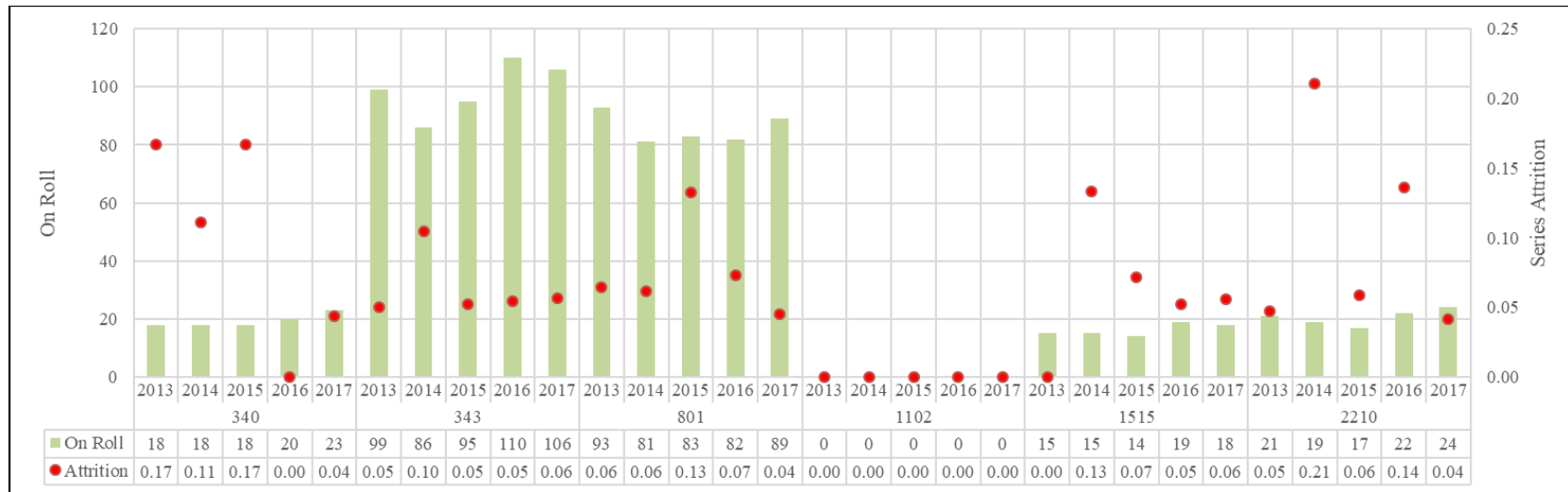


Figure 10. S&T—End of FY on Roll by Series and Series Attrition Rate⁷⁵

⁷⁵ Adapted from DHS Office of the Chief Human Capital Officer.

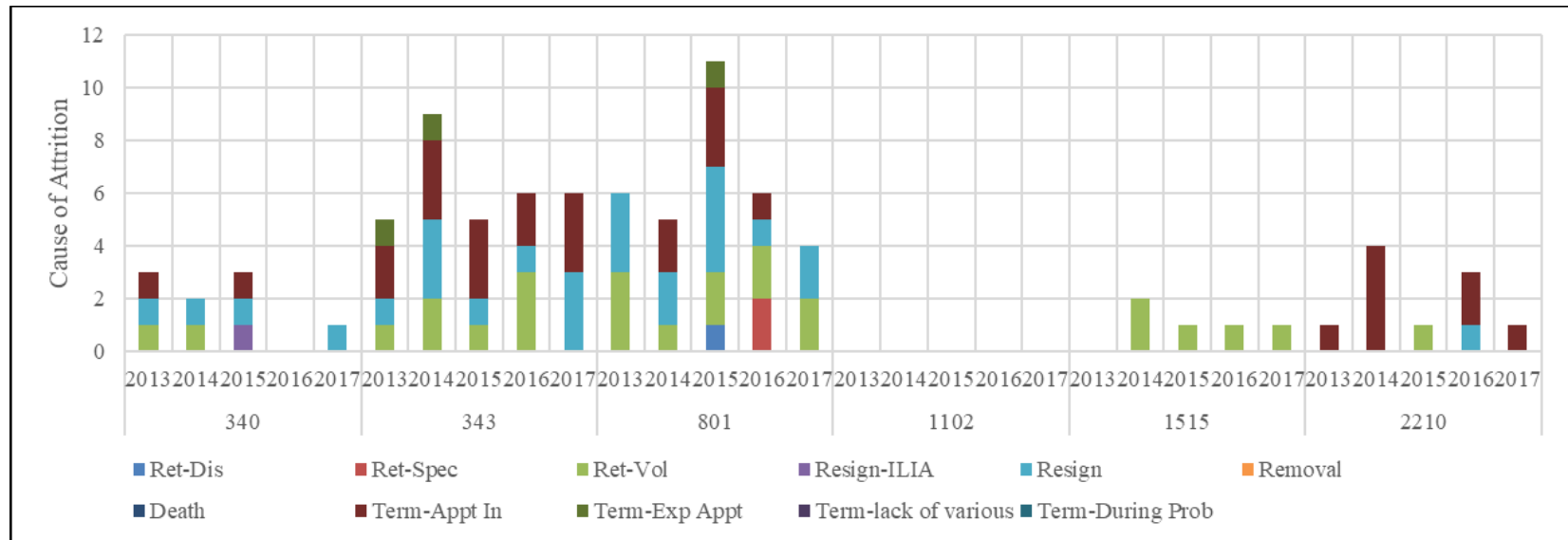


Figure 11. S&T—Primary Cause of Attrition⁷⁶

⁷⁶ Adapted from DHS Office of the Chief Human Capital Officer.

D. FEDERAL EMERGENCY MANAGEMENT AGENCY

FEMA’s website simply defines the organization’s mission as “Helping people before, during, and after disasters.”⁷⁷ FEMA currently has four major acquisition programs under development, involving grants management modernization, public warning systems, logistics supply chain management, and national flood insurance.⁷⁸

FEMA’s acquisition community attrition rates tend to stay equal or below the component averages over the reviewed period, other than FY17 when the 0340, 0801, and 2210 job series witnessed attrition rates greater than the component’s average. Table 6 shows that FY17 has the most data points (three altogether) above the component average; FY16 only had one data point above the component average, and none of the data points between FY13 and FY15 were higher than the component average.

Table 6. FEMA Attrition Rates by Discipline⁷⁹

Series	FY13	FY14	FY15	FY16	FY17
340	0.11	0.09	0.1	0.06	0.13
343	0.06	0.06	0.08	0.08	0.07
801	0.2	0	0	0.13	0.24
1102	0.11	0.09	0.12	0.12	0.06
1515	0	0	0	0.2	0
2210	0.04	0.05	0.07	0.07	0.1
Component	0.25	0.13	0.12	0.13	0.08

Note: Red cells indicate an attrition rate higher than the component average.

⁷⁷ “About the Agency,” FEMA, accessed March 26, 2018, <https://www.fema.gov/about-agency>.

⁷⁸ DHS, *Master Acquisition Oversight List*, 2.

⁷⁹ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

For job series with low end-of-year on-roll numbers, such as engineers and operational research analysts, the attrition rates appear higher when graphed and compared to other job series (see Figure 12). However, further investigation revealed that FEMA only lost four engineers in FY17, providing another example of why attrition rate in and of itself may not be an effective metric for disciplines with lower head counts. The total number of 0343 program managers increased over the five years investigated, from 52 in FY13, peaking at 76 in FY15, and closing out FY17 at 70, as shown in Figure 13. While the end-of-year on-roll numbers grew for FEMA in the 0343 series, there was an increase in FY15 of voluntary retirements and resignations, with two program breaches, and a single program breach in FY14. In FY15, the total number of 0343 employees who left FEMA increased by 22 from the previous year.

Series 2210, information technology specialists, also experienced a spike in resignations in FY17. The component's last year with an experienced breach was FY15, when it breached two acquisition programs. A detailed review of exactly when the breaches occurred within the fiscal year could reveal further information to establish a link between the breached event and increased resignations.

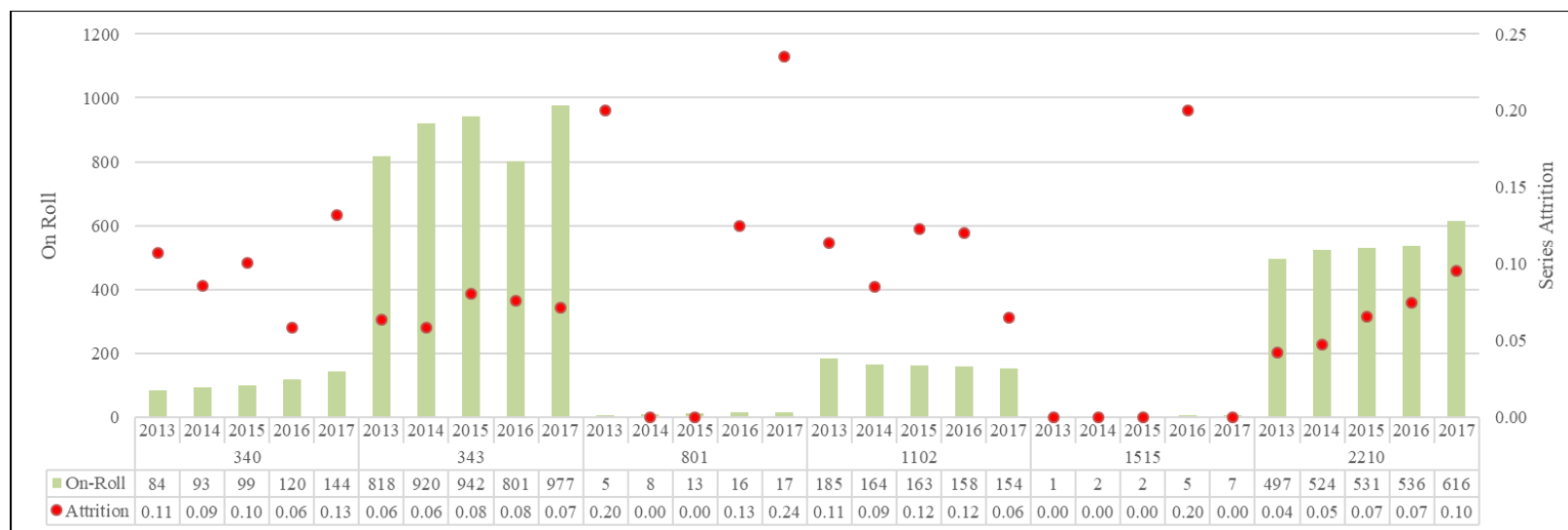


Figure 12. FEMA—End of FY on Roll by Series and Series Attrition Rate⁸⁰

⁸⁰ Adapted from DHS Office of the Chief Human Capital Officer.

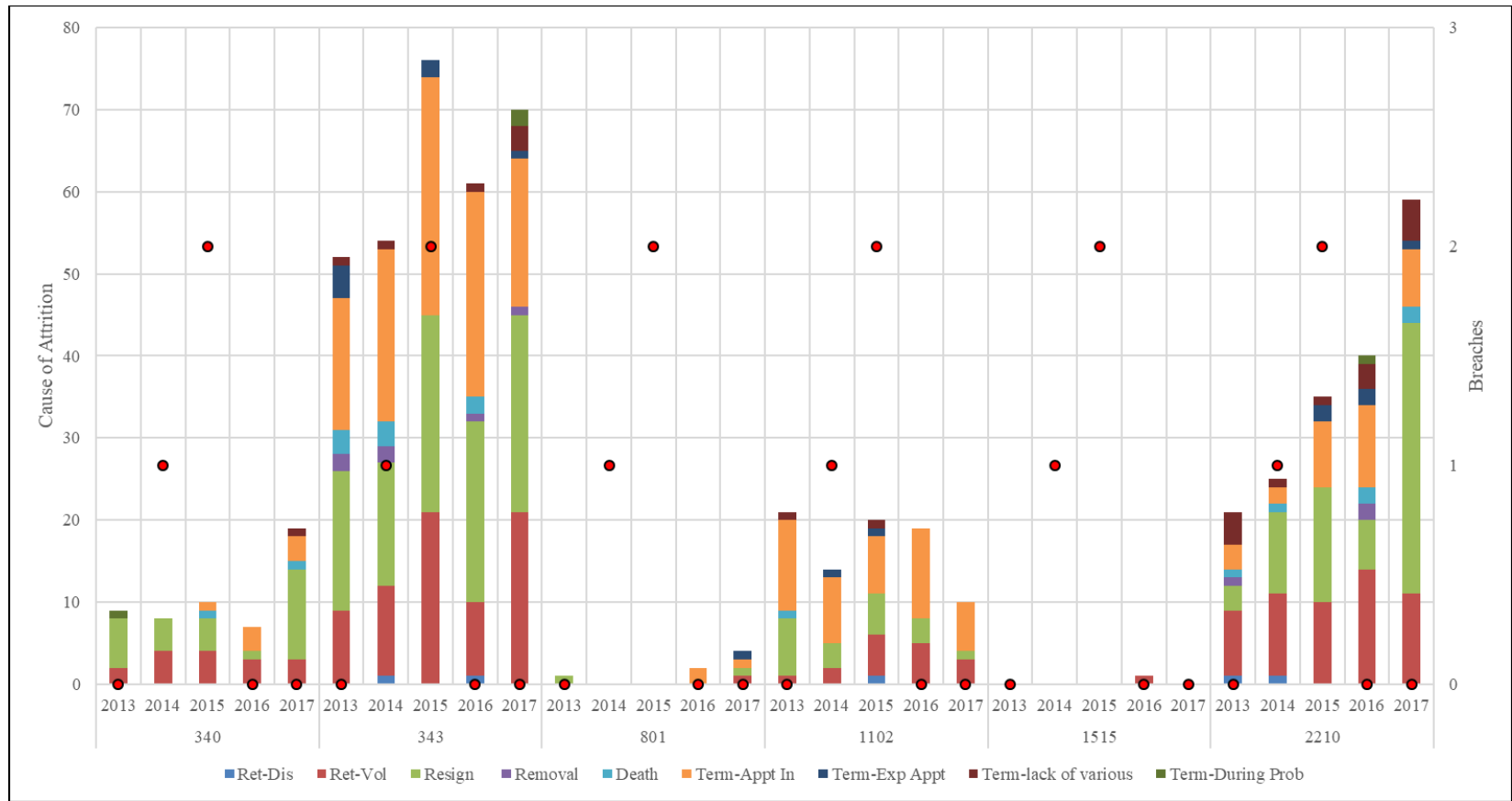


Figure 13. FEMA—Primary Cause of Reported Attrition with Component Breaches⁸¹

⁸¹ Adapted from DHS Office of the Chief Human Capital Officer.

E. CUSTOMS AND BORDER PROTECTION

According to CBP's web page, the component's mission is "To safeguard America's borders thereby protecting the public from dangerous people and materials while enhancing the Nation's global economic competitiveness by enabling legitimate trade and travel."⁸² Agents currently use some technologies that were fielded before DHS was established, while others technologies are being developed to specifically mitigate emerging threats.

According to the April 2018 DHS MAOL, CBP currently has a dozen major acquisition programs under development these programs include the following:

- Automated Commercial Environment (ACE)
- Biometric Entry-Exit
- Cross Border Tunnel Threat (CBTT)
- Integrated Fixed Towers (IFTs)
- Medium Lift Helicopter, H-60
- Multi-role Enforcement Aircraft (MEA)
- Mobile Video Surveillance System (MVSS)
- Non-Intrusive Inspection (NII) Systems Program
- Remote Video Surveillance System (RVSS)
- Tactical Communication (TACCOMN) Modernization
- TECS Modernization
- The Wall.⁸³

⁸² "About CBP," Customs and Border Protection, accessed March 26, 2018, www.cbp.gov/about.

⁸³ DHS, Master Acquisition Oversight List, 2.

The CBP acquisition portfolio is broad, ranging from aircraft, to information and communications systems, to sensors, and “the wall” directed by President Trump under Executive Order 13767.⁸⁴ The breadth of the technology portfolio highlights the various challenges and skill sets the acquisition workforce must be ready to work with.

As shown in Table 7, a number of job series experienced a marginally higher attrition rate than the component average. The 0340, program analyst, and 0801, engineering, series rates were higher than the component average for each of the five years. CBP maintained its low number of operational research analysts throughout the five years investigated and grew the job series from one to 11.

Table 7. CBP Attrition Rates by Discipline⁸⁵

Series	FY13	FY14	FY15	FY16	FY17
340	0.06	0.06	0.05	0.06	0.05
343	0.06	0.04	0.04	0.03	0.06
801	0.07	0.05	0.13	0.07	0.06
1102	0.03	0.04	0.05	0.02	0.1
1515	0	0	0	0	0
2210	0.03	0.03	0.03	0.04	0.03
Component	0.04	0.03	0.03	0.03	0.03

Note: Red cells indicate an attrition rate higher than the component average.

The attrition rate for the 0343 series shown in Figure 14 corresponds well to the data in Figure 15, highlighting a substantial increase in a year after the component experienced two breaches. While the total number of 0801 engineers only varied by 40 over the five years, this suggests CBP has an active recruiting process in place. In Figure 14, the 0801 engineering series provides a good example of why just evaluating attrition rate itself can be misleading. In FY15, the series had a 13 percent attrition rate. Diving deeper into the data, however, the net loss was only three engineers; five of the nine

⁸⁴ Donald J. Trump, “Executive Order: Border Security and Immigration Enforcement Improvements,” The White House, January 25, 2017, <https://www.whitehouse.gov/presidential-actions/executive-order-border-security-immigration-enforcement-improvements/>.

⁸⁵ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

total engineer losses in FY15 were a result of resignations. There is room for speculation when looking at the data. For example, could the loss of engineering talent in FY15 have led to program breaches in FY16, as shown in Figure 15? Further research, evaluation, and interviewing with the component would be required to determine if such a link exists.

In 2016, CBP experienced two program breaches, and two job series showed increases in voluntary retirements the following year according. Twice the number of program managers (0343 series) retired, and resignations increased the year following the program breaches. Additionally, the 1102 series, contract management specialist, also experienced an increase in retirements following the FY16 breaches.

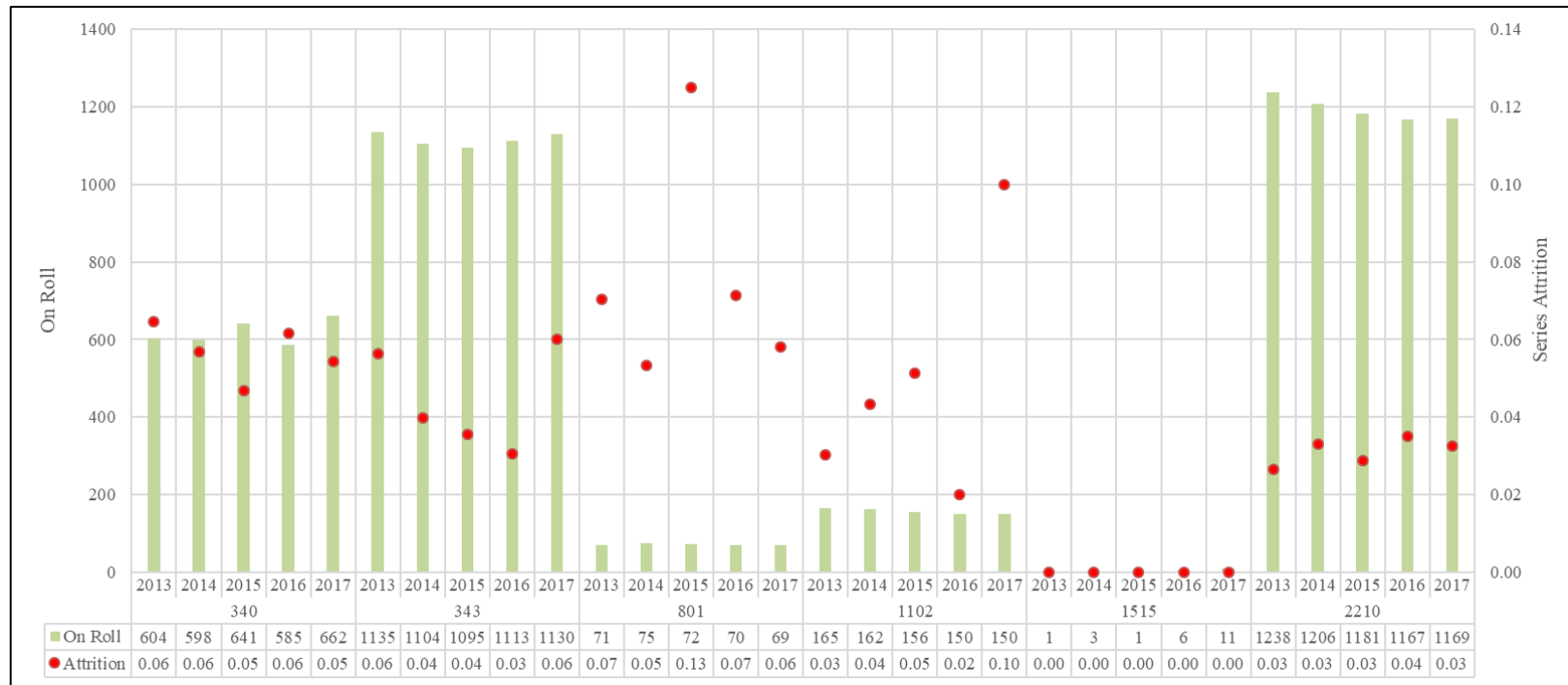


Figure 14. CBP—End of FY on Roll by Series and Series Attrition Rate⁸⁶

⁸⁶ Adapted from DHS Office of the Chief Human Capital Officer.

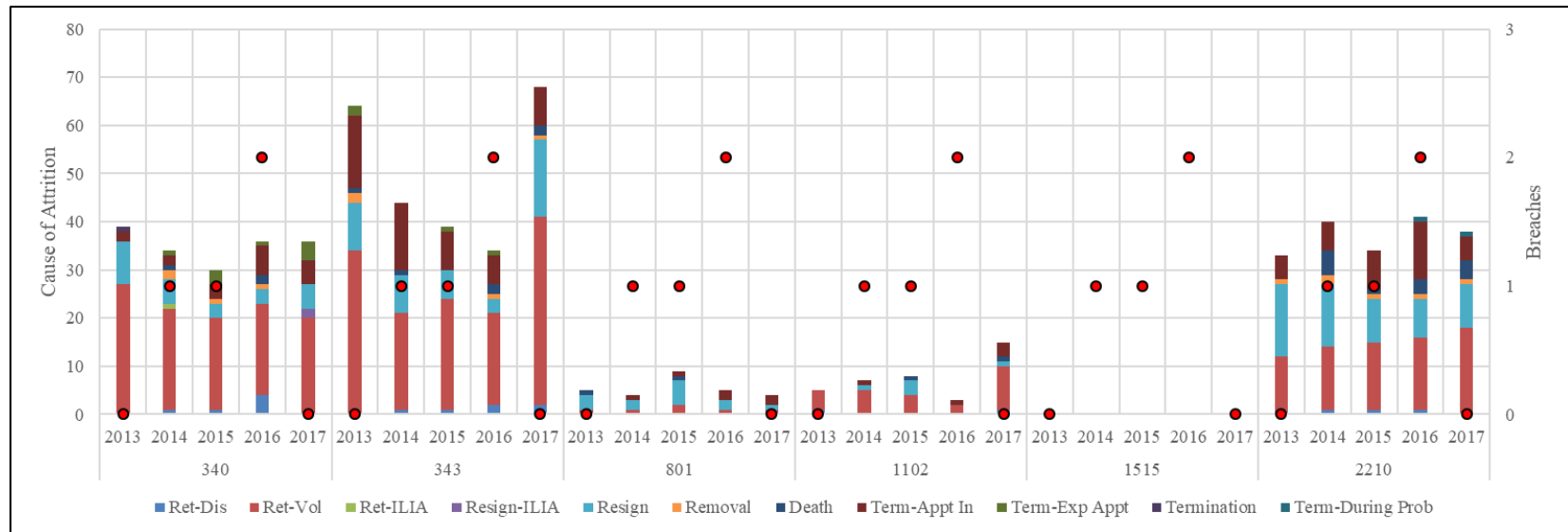


Figure 15. CBP—Primary Cause of Reported Attrition with Component Breaches⁸⁷

⁸⁷ Adapted from DHS Office of the Chief Human Capital Officer.

F. TRANSPORTATION SECURITY ADMINISTRATION

The TSA’s webpage describes its mission as to “protect the nation’s transportation systems to ensure freedom of movement for people and commerce.”⁸⁸ The TSA has three programs on the MAOL, each with its own program office and staff: the Electronic Baggage Screening Program, the Passenger Screening Program, and the Technology Infrastructure Modernization program.⁸⁹ The attrition rates of those job series supporting the acquisition mission at TSA are below the component averages throughout the period of study, as presented in Table 8. All of TSA’s acquisition workforce attrition rates are either less than or equal to the component’s overall attrition rate.

Table 8. TSA Attrition Rates by Discipline⁹⁰

Series	FY13	FY14	FY15	FY16	FY17
340	0.07	0.07	0.09	0.07	0.06
343	0.07	0.08	0.07	0.06	0.05
801	0.03	0.03	0.05	0.07	0.02
1102	0.06	0.08	0.12	0.1	0.09
1515	0.06	0	0.1	0.05	0.1
2210	0.07	0.07	0.09	0.08	0.06
Component	0.12	0.13	0.13	0.14	0.1

⁸⁸ “Mission,” Transportation Security Administration, accessed April 26, 2018, <https://www.tsa.gov/about/tsa-mission>.

⁸⁹ DHS, Master Acquisition Oversight List, 3.

⁹⁰ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

TSA's overall workforce attrition rates ranged from 10–14 percent over the five-year period, as shown in Figure 16. This 10–14-percent average attrition rate is the highest of any DHS component. In a 2007 report, the GAO highlighted the high turnover rate of the TSA's transportation security officers; at the time, these officers made up almost one-third of the DHS workforce, driving both the TSA's and DHS's attrition rates higher when compiled.⁹¹

TSA experienced seven total breaches over the five-year study period, as plotted in Figure 17. The 0343, program manager, series did experience a loss of 334 employees over five years at TSA; however, with an average end-of-year on-the-roll number of 980, the loss of knowledge and impact to acquisition programs is presumed to be negligible.

⁹¹ GAO, DHS's Actions to Recruit and Retain Staff and Comply with the Vacancies Reform Act, GAO-07-758 (Washington, DC: Government Accountability Office, 2007), 5.

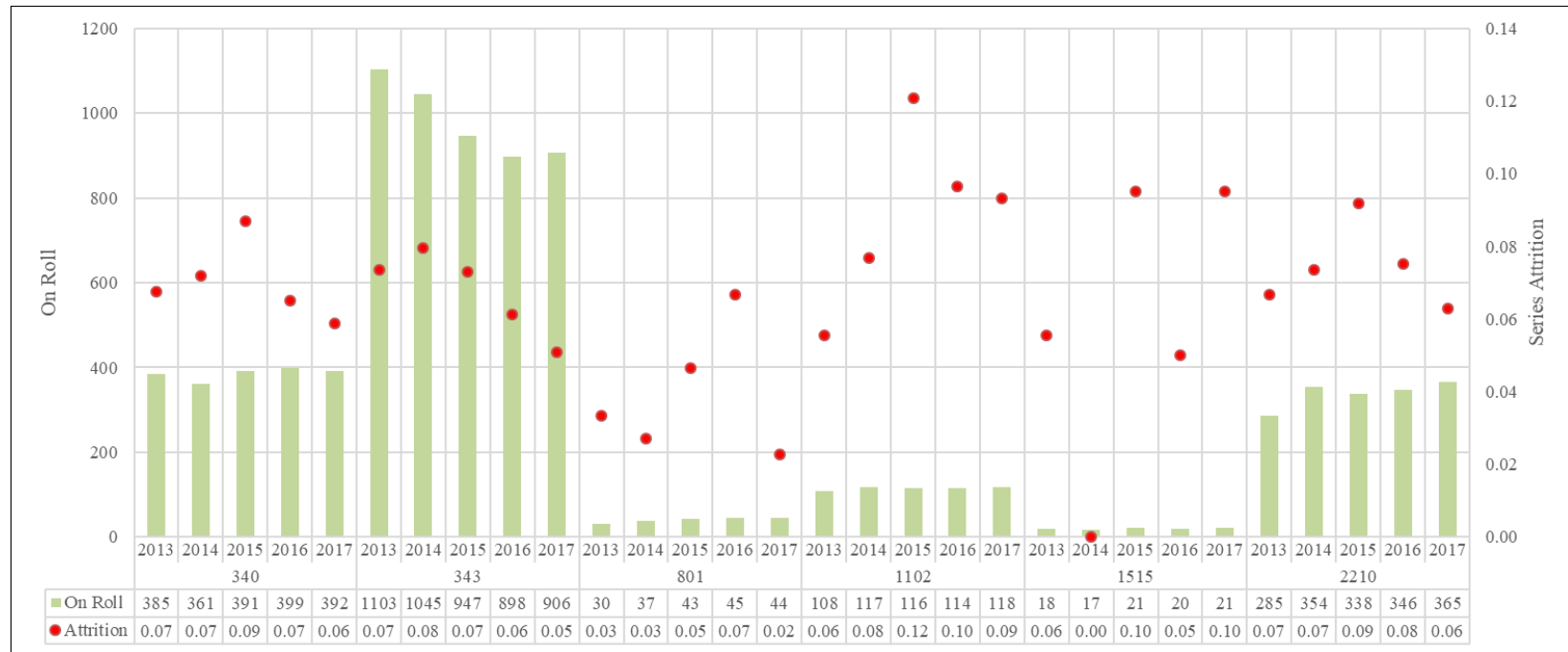


Figure 16. TSA—End of FY on Roll by Series and Series Attrition Rate⁹²

⁹² Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

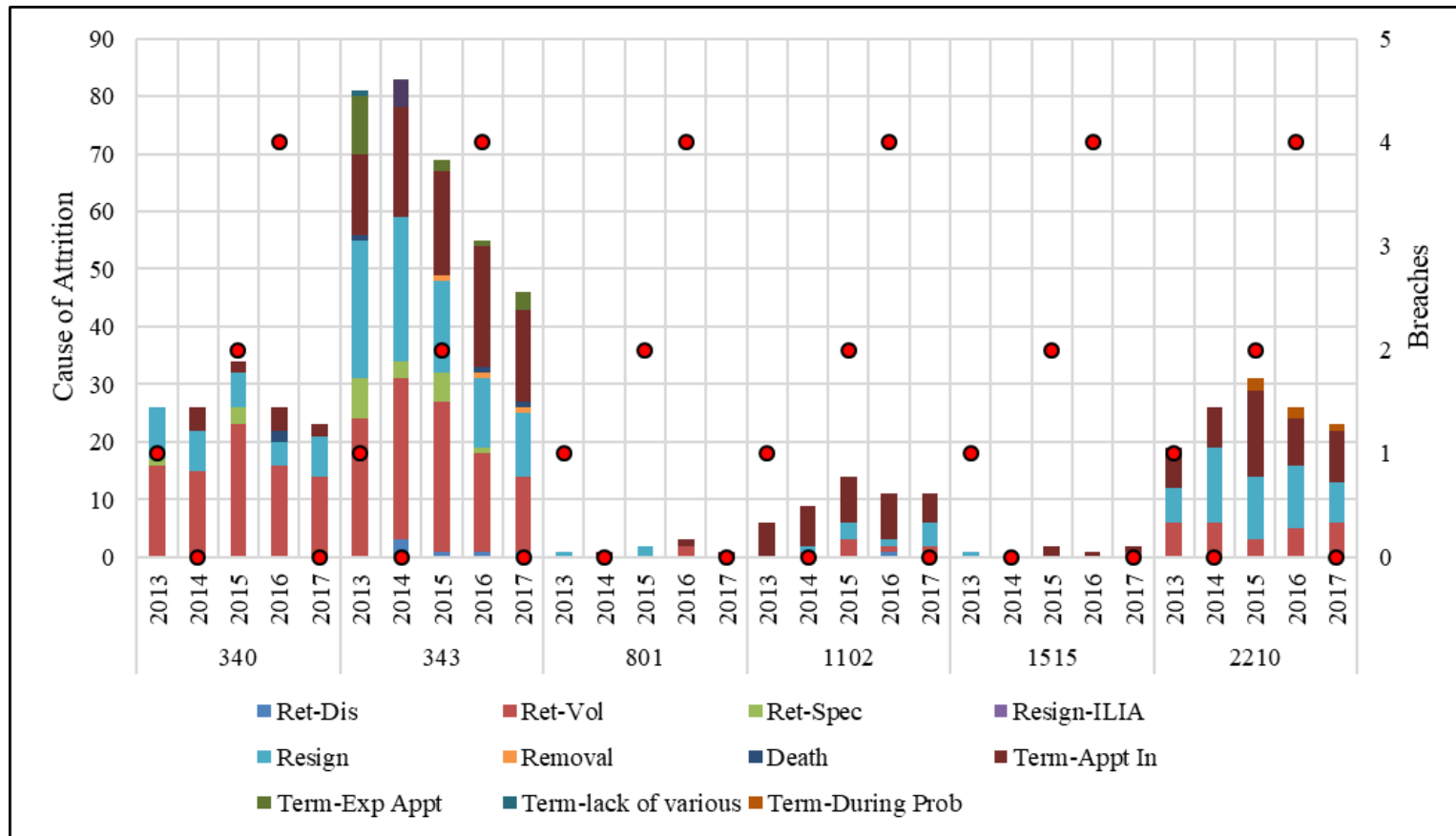


Figure 17. TSA—Primary Cause of Reported Attrition with Component Breaches⁹³

⁹³ Adapted from DHS Office of the Chief Human Capital Officer.

G. IMMIGRATION AND CUSTOMS ENFORCEMENT

According to ICE’s website, its “mission is to protect America from the cross-border crime and illegal immigration that threaten national security and public safety. This mission is executed through the enforcement of more than 400 federal statutes and focuses on smart immigration enforcement, preventing terrorism, and combating the illegal movement of people and goods.”⁹⁴ In order to meet the technology needs, the component has two major acquisition programs: the Student and Exchange Visitor Information System and a program called T-8, which is a law enforcement information technology program to modernize case management.⁹⁵

As shown in Table 9, ICE has some attrition challenges. With the exception of the 0801 series (engineers), of which ICE only had one from FY13 to FY17, attrition rates for individual series are two to three times higher or more than the component average in several of the observed years (see Figure 18).

Table 9. ICE Attrition Rates by Discipline⁹⁶

Series	FY13	FY14	FY15	FY16	FY17
340	0.07	0.06	0.16	0.11	0.15
343	0.05	0.04	0.06	0.06	0.04
801	0	0	0	0	0
1102	0.12	0.11	0.07	0.12	0.03
1515	0	0	1	0.14	0.25
2210	0.07	0.06	0.04	0.08	0.06
Component	0.05	0.05	0.05	0.05	0.04

Note: Red cells indicate an attrition rate higher than the component average.

⁹⁴ “What We Do,” Immigration and Customs Enforcement, accessed, March 6, 2018, www.ice.gov/overview#wcm-survey-target-id.

⁹⁵ DHS, Master Acquisition Oversight List, 2.

⁹⁶ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

Figure 18 displays a rather low and consistent attrition rate over the job series (aside from than the 1515 series), which can be the sign of a satisfied workforce. ICE maintained just over 800 total program managers (0343 series) over the five-year period, with attrition rates below or just one percentage point above the component's average. Retirements and the end of temporary appointments are the leading causes of loss within the 0343 series. ICE faced a single breach in both FY14 and FY15; however, the data set has no indications of their causes or effects. Figure 19 highlights the number of people who departed the ICE acquisition workforce and for what primary reasons.

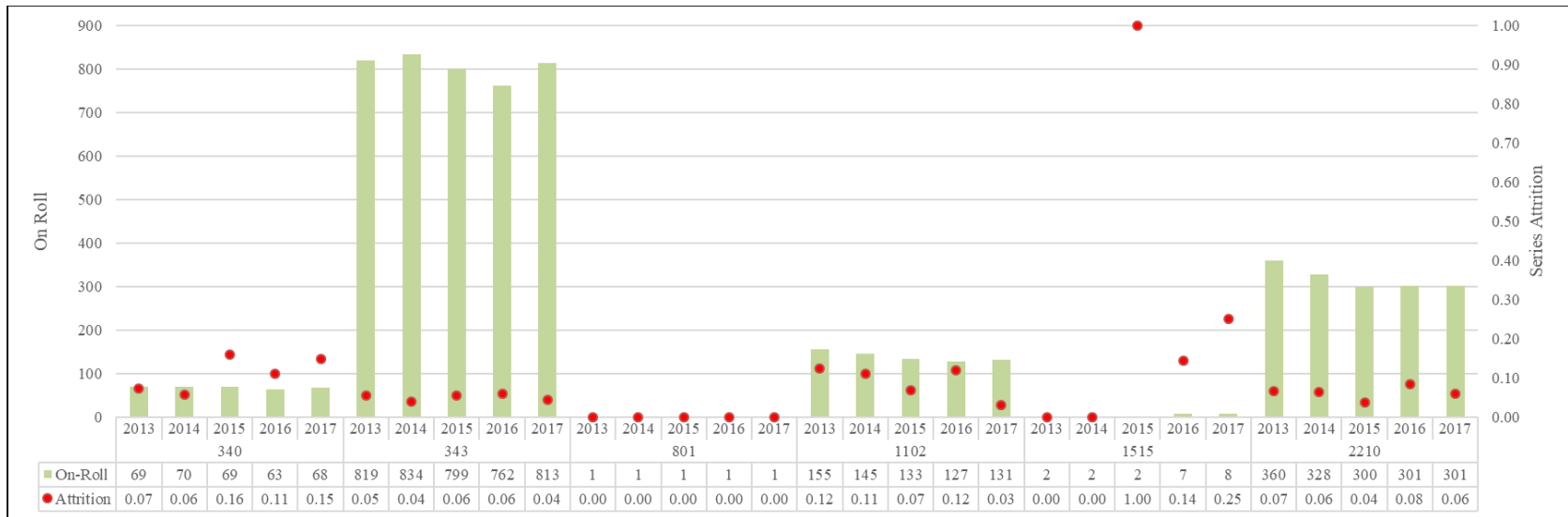


Figure 18. ICE—End of FY on Roll by Series and Series Attrition Rate⁹⁷

⁹⁷ Adapted from DHS Office of the Chief Human Capital Officer.

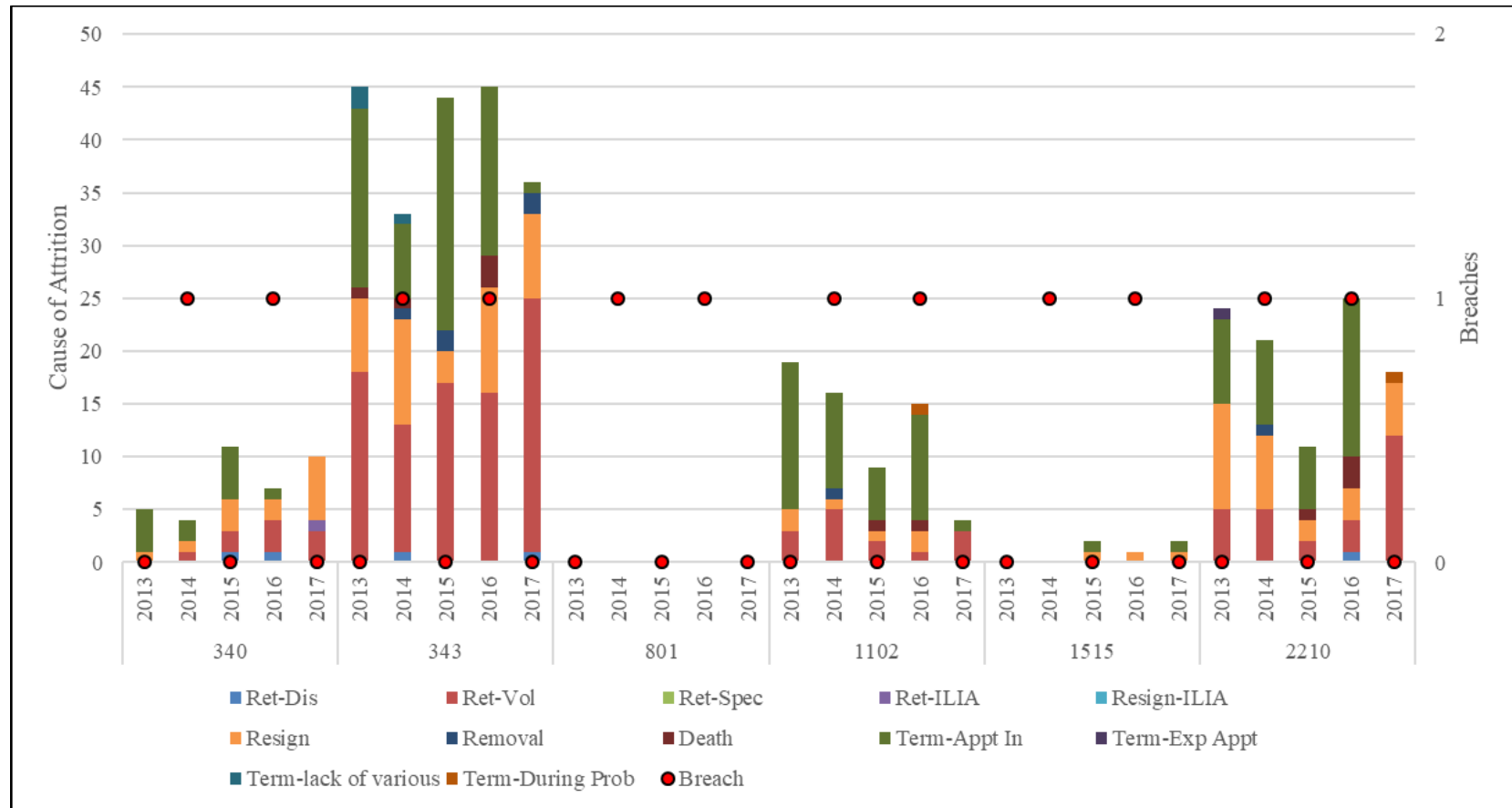


Figure 19. ICE—Primary Cause of Reported Attrition with Component Breaches⁹⁸

⁹⁸ Adapted from DHS Office of the Chief Human Capital Officer.

H. U.S. CITIZENSHIP AND IMMIGRATION SERVICE

The USCIS webpage declares that it “administers the nation’s lawful immigration system, safeguarding its integrity and promise by efficiently and fairly adjudicating requests for immigration benefits while protecting Americans, securing the homeland, and honoring our values.”⁹⁹ USCIS currently has two programs on the MAOL, one called Transformation and the other named Verification Modernization, both of which are IT programs focused on immigration and citizenship.¹⁰⁰

Table 10 shows the 1102 series, contracting officials, withstanding higher attrition rates than the component averages, along with three other series (0340, 1515, and 2210) in FY17. The next chapter addresses 1102 movement in detail.

Table 10. USCIS Attrition Rates by Discipline¹⁰¹

Series	FY13	FY14	FY15	FY16	FY17
340	0.13	0.02	0.04	0.06	0.1
343	0.04	0.06	0.04	0.05	0.03
801	0	0	0	0	0
1102	0.09	0.07	0.11	0.1	0.02
1515	0	0	0	0.03	0.06
2210	0.04	0.04	0.05	0.07	0.06
Component	0.05	0.06	0.05	0.06	0.04

Note: Red cells indicate an attrition rate higher than the component average.

Figure 20 highlights the increase in attrition among the 0340 series starting in FY14, even as the end-of-year on-roll numbers gradually increased. One interesting trend observed in Figure 20 is that, in job series except the 0801 engineering discipline, the end-of-year on-roll numbers increased at least slightly every year starting in FY13. A 2017

⁹⁹ “About Us,” U.S. Citizenship and Immigration Services, accessed 26 April 2018, <https://www.uscis.gov/aboutus>.

¹⁰⁰ DHS, Master Acquisition Oversight List, 3.

¹⁰¹ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

report by the USCIS ombudsman presents two facts that may be leading to the increase. First, when discussing how the demand for assistance has been growing, the report states,

While we believe this growth in requests is partly due to increasing awareness of the services we provide, it is also the result of an immigration system that is expanding, both in complexity and in the benefits it offers. Indeed, between creating new immigration programs, expanding the classes of aliens who qualify for existing programs, and a general increase in applications, USCIS' workload has grown significantly over the past several years. In FY 2016 alone, USCIS received approximately 8.070 million applications for benefits, a 5 percent increase over FY 2015 and a 34 percent increase over FY 2012.¹⁰²

While the job series supporting the acquisition community at USCIS did not directly increase because of a growing immigration system, the need for technology that supports the immigration system may have grown. More personnel are therefore needed to support technology acquisition within the USCIS mission space.

Second, the report highlighted issues with USCIS's Transformation initiative. According to the GAO, this initiative will "Enable electronic adjudication and case management tools that would allow users to apply and track their applications online."¹⁰³ Both the ombudsman report and GAO report allude to the fact that USCIS needed increased resources for resources for this initiative, although neither say that the resources were tied to human capital. We can strongly speculate, however, that additional human capital assets were brought on board to fix and deliver the needed capabilities.

USCIS only has one reported breach, in FY13. Figure 21 shows an increase in program analyst departures after the breach, primarily attributed to voluntary retirements; however, Figure 20 shows an increase in the total program analyst workforce, from 80 in FY13 to 114 in FY17, with a gradual increase in attrition rate. While the component appears to have taken steps to build up its workforce, the attrition rate continues to climb, which could mean an internal factor within USCIS led to the loss of 0340 program analysts.

¹⁰² USCIS Ombudsman, *Annual Report 2017: Citizenship and Immigration Services* (Washington, DC: Department of Homeland Security, 2017).

¹⁰³ Carol C. Harris, *Immigration Benefits System Significant Risk in USCIS's Efforts to Develop its Adjudication and Case Management System*, GAO-17-486T (Washington, DC: Government Accountability Office, 2017), 2.

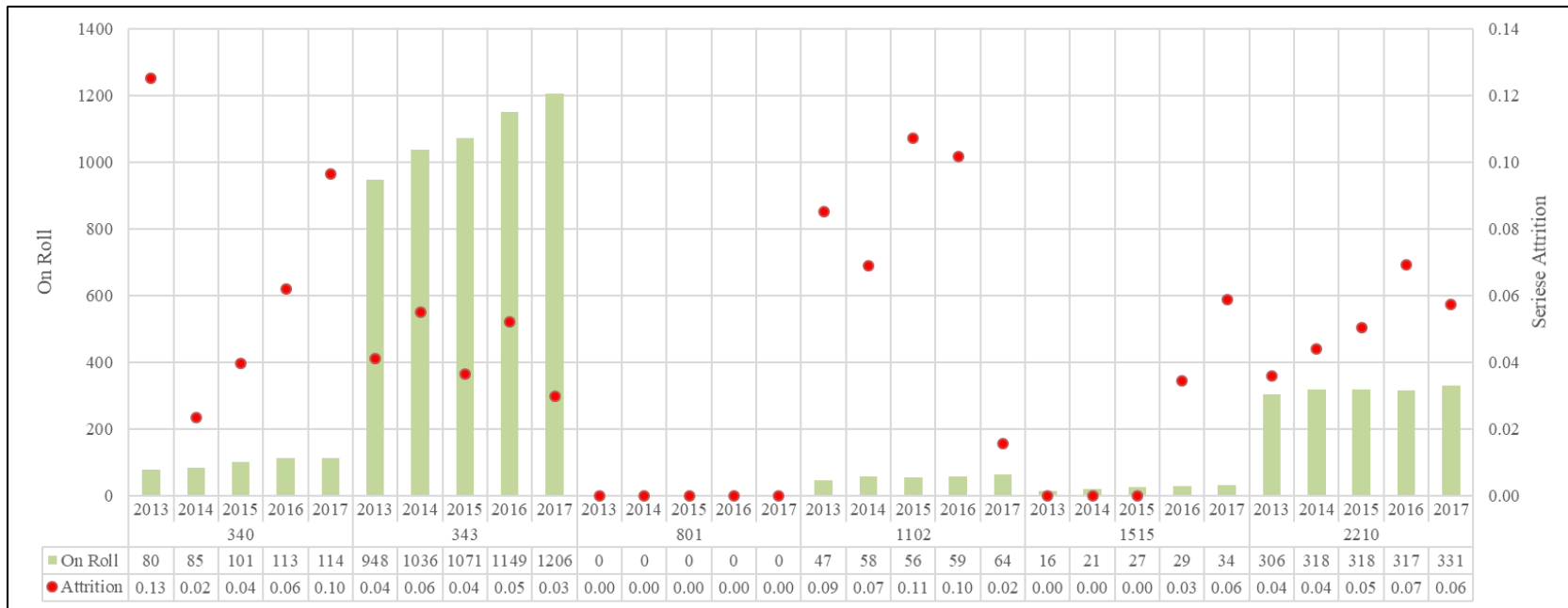


Figure 20. USCIS—End of FY on Roll by Series and Series Attrition Rate¹⁰⁴

¹⁰⁴ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

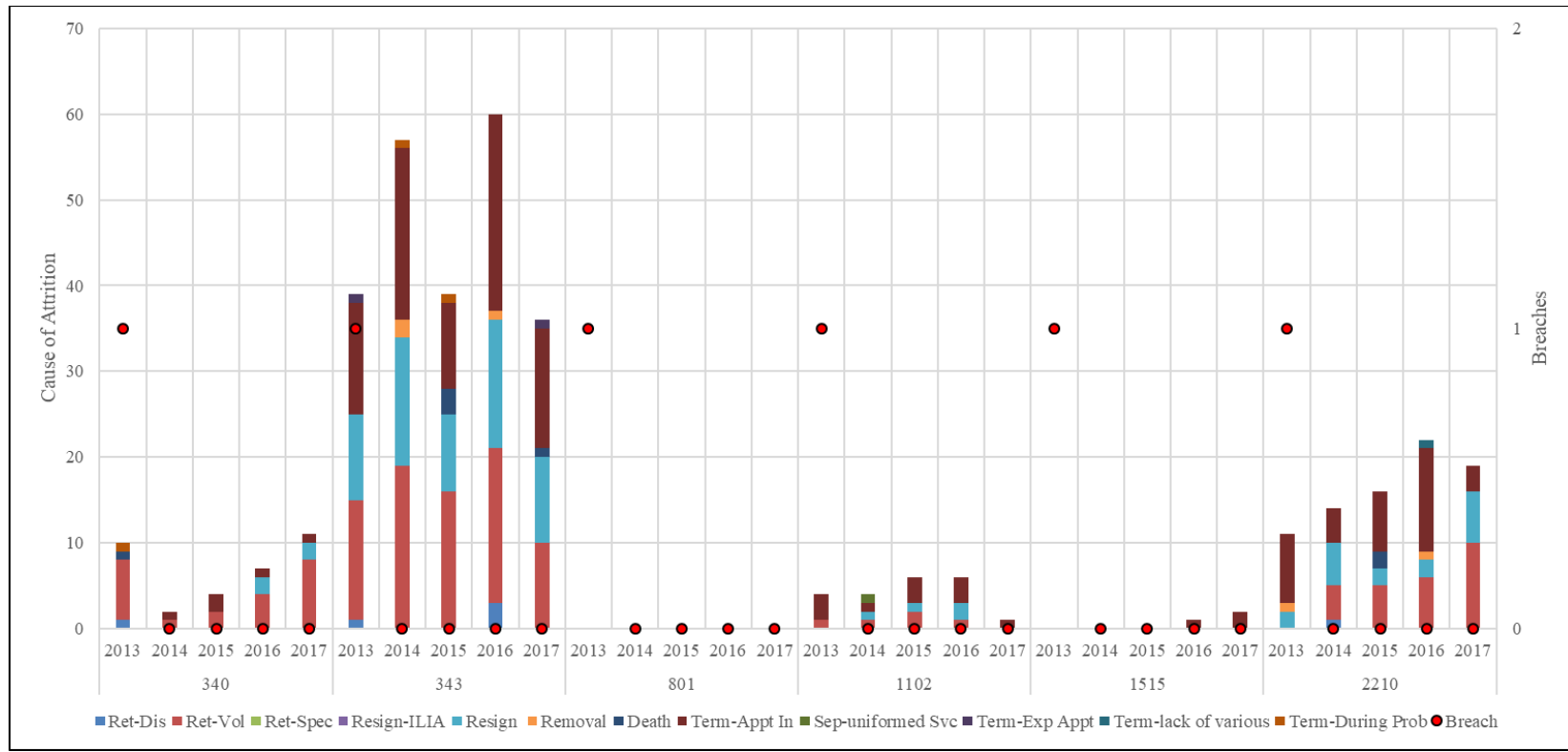


Figure 21. USCIS—Primary Cause of Reported Attrition with Component Breaches¹⁰⁵

¹⁰⁵ Adapted from DHS Office of the Chief Human Capital Officer.

I. U.S. SECRET SERVICE

The USSS sustains two key missions. First,

The Secret Service is recognized for the physical protection it provides to the nation's highest elected leaders, visiting foreign dignitaries, facilities and major events. In order to ensure a secure environment for protectees, the Secret Service integrates a variety of innovative technologies and maintains a highly skilled and motivated workforce.¹⁰⁶

While this mission is well known, the USSS has a lesser-known investigative mission as well:

The agency's investigative mission has evolved from enforcing counterfeiting laws to safeguarding the payment and financial systems of the United States from a wide range of financial and computer-based crimes. To combat these crimes, the Secret Service has adopted a proactive approach, using advanced technologies and capitalizing on the power of task force partnerships.¹⁰⁷

The USSS only has one program on the MAOL, the Information Integration and Technology Transformation program.¹⁰⁸ With an acquisition workforce of only 186 employees spread among the six job series analyzed in this study, inferring any trends or speculating about cause-and-effect relationships would be inappropriate. Table 11, Figure 22, and Figure 23 are provided for comparison to other components' data and completeness of the study, as the USSS plays a vital role in the homeland security enterprise.

¹⁰⁶ "The Protective Mission," Secret Service, accessed April 26, 2018, www.secretservice.gov/protection/.

¹⁰⁷ "The Investigative Mission," Secret Service, accessed April 26, 2018, www.secretservice.gov/investigation/.

¹⁰⁸ DHS, Master Acquisition Oversight List, 3.

Table 11. USSS Attrition Rates by Discipline¹⁰⁹

Series	FY13	FY14	FY15	FY16	FY17
340	0	0	0	0	0
343	0.07	0.02	0.08	0.05	0.06
801	0.11	0.09	0.3	0	0.13
1102	0.16	0	0.21	0.3	0.13
1515	0	0	0	0	0
2210	0.04	0.04	0.06	0.07	0.03
Component	0.05	0.05	0.07	0.08	0.05

Note: Red cells indicate an attrition rate higher than the component average.

¹⁰⁹ Adapted from DHS Office of the Chief Human Capital Officer, “On-Roll Job Series.”

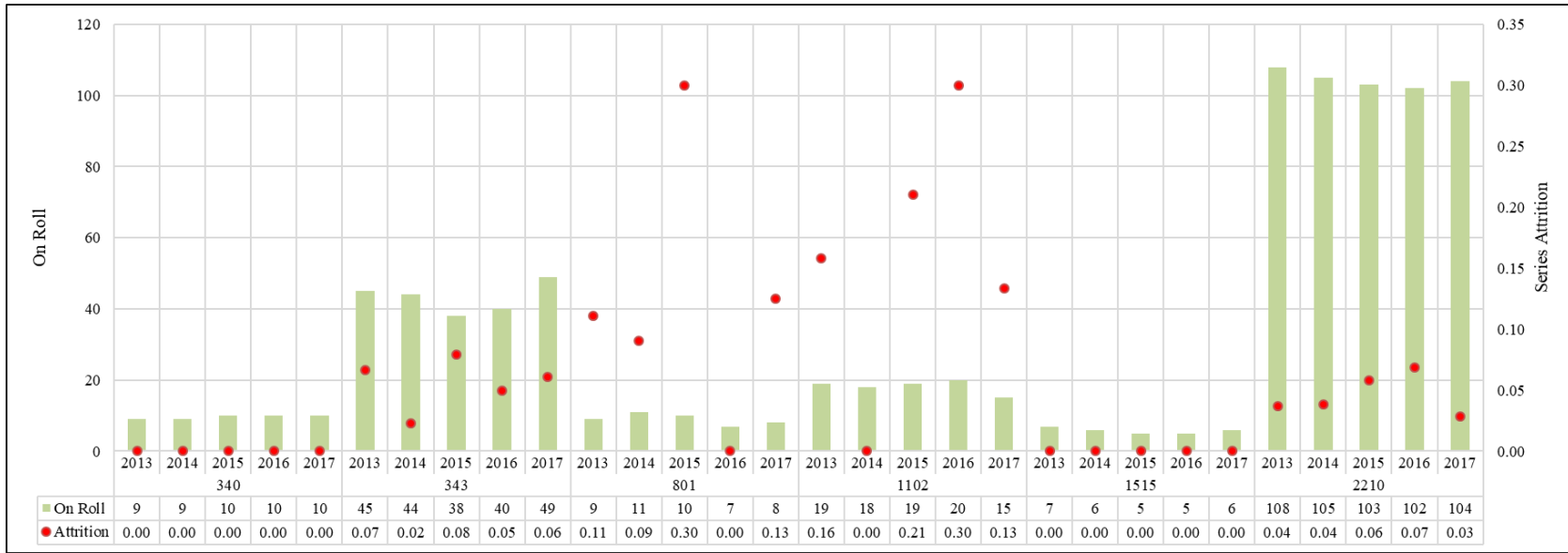


Figure 22. USSS—End of FY on Roll by Series and Series Attrition Rate¹¹⁰

¹¹⁰ Adapted from DHS Office of the Chief Human Capital Officer.

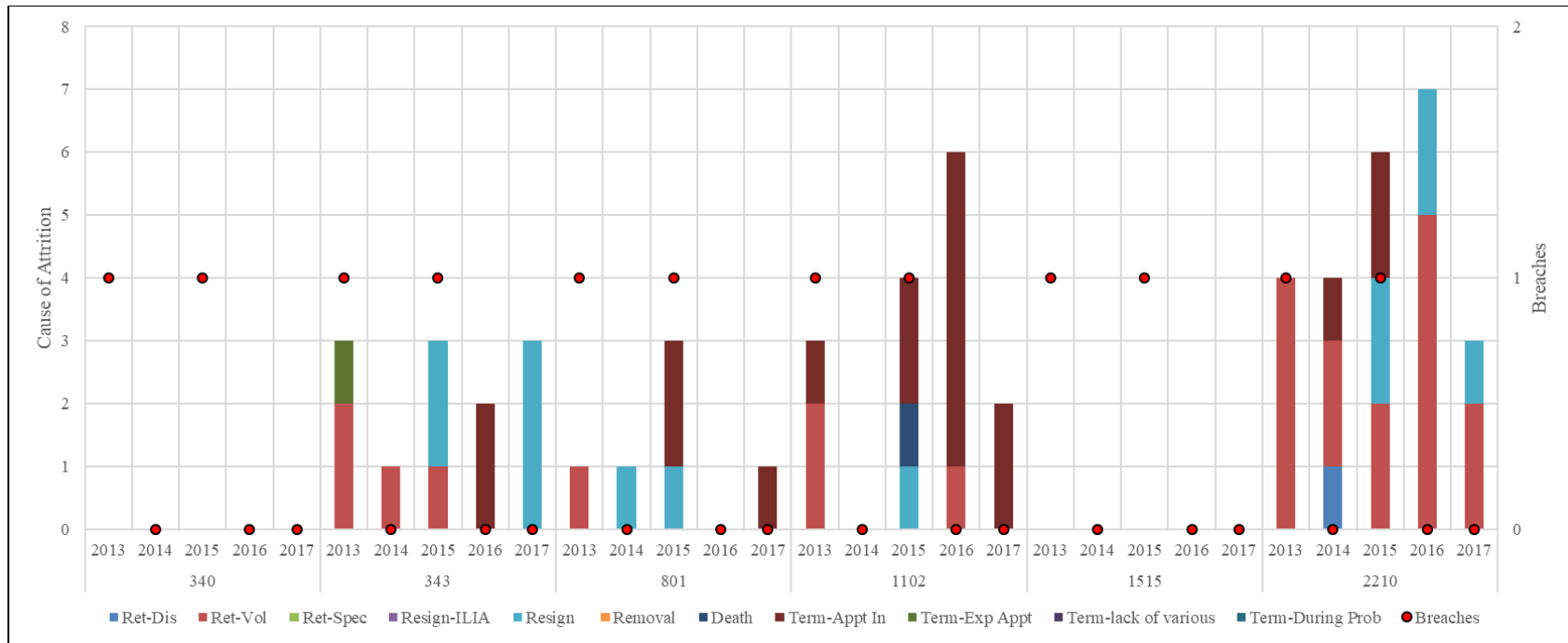


Figure 23. USSS—Primary Cause of Reported Attrition with Component Breaches¹¹¹

¹¹¹ Adapted from DHS Office of the Chief Human Capital Officer.

J. OTHER SIGNIFICANT DATA

DHS is compared to the DoD in many regards; therefore this study also reviewed attrition of similar job series in the DoD. Figure 24 compares DoD and DHS attrition rates over a five-year period by job series.

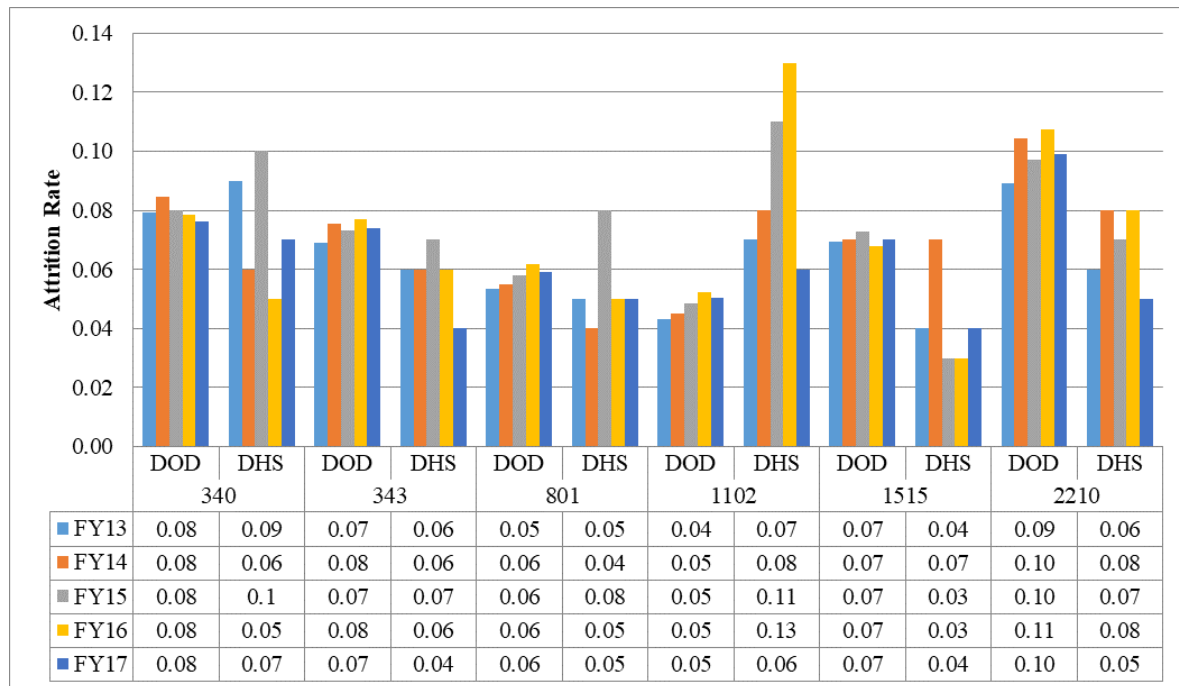


Figure 24. DoD versus DHS Attrition by Job Series¹¹²

Data collected for DHS, which shows the major components and two headquarters elements, was consistent with the rest of the research. The DoD data only show attribution rates for the Department of the Air Force, Department of the Army, and Department of the Navy, to avoid the entirety of the DoD overhead; because much of the DoD acquisition work that drives success or failure falls within the service components and not the DoD as a whole, this approach helps with consistency. Only five data points show a difference of more than 3 percent: In FY14 and FY15, DHS experienced a higher attrition rate within its

¹¹² Adapted from “FedScope Employment Cubes,” Office of Personnel Management, accessed January 25, 2018, <https://www.fedscope.opm.gov/employment.asp>.

1102, contracting, series by 6 percent and 8 percent, respectively. The DoD experienced a greater loss of its operational research analysts in FY14 and FY15 than DHS by 4 percent each year. In FY17, the DoD lost 5 percent more of its information technology specialists from the 2210 series.

The close correlation between the DoD and DHS data suggest both acquisition communities encounter the same challenges in retention of their professional workforce. In general, DHS attrition rates are lower in the job series reviewed; however, without further examination, it is not possible to determine why. Furthermore, the size of the two acquisition workforces is substantially different; DHS's acquisition workforce in 2017 was 12,865, while DoD's 2015 acquisition workforce had about 156,313 members.¹¹³

In comparison, data from the Department of Labor Statistics presented in Table 12 show that public service agencies—federal, state, and local, but excluding education—had some of the lowest attrition rates among various industries between FY13 and FY17. Mary Chapman asserts, “Some private-sector positions may offer higher starting salaries, but recruiters say government jobs often have better benefits and more opportunities for advancement. With corporation acquisition, buyouts and mergers out of the equation, there is more job security.”¹¹⁴ Benefits and job security are common themes attracting people to public service and certainly have an impact on lower attrition rates.

¹¹³ DHS Office of the Chief Procurement Officer, *Human Capital Plan*; DoD, *Department of Defense Acquisition Workforce Strategic Plan* (Washington, DC: Department of Defense, 2015).

¹¹⁴ Mary Chapman, “You Can Work for the Federal Government,” *Black Collegian* 40, no. 1 (September 2009): 8.

Table 12. Attrition Rates of Various Industries¹¹⁵

Industry	2013	2014	2015	2016	2017
Total	38.1	40	41.8	42.2	43
INDUSTRY					
Total private	42.3	44.5	46.2	46.5	47.4
Mining and logging	38.8	40.7	55.6	58.5	47.8
Construction	62.2	55.9	55.6	58	60.1
Manufacturing	23.1	24	25.5	27.2	30.4
Durable goods	21.9	21.7	24.2	25.7	27.2
Nondurable goods	25.1	27.8	27.7	29.7	35.7
Trade, transportation, and utilities	40.9	46.2	46.9	45.2	45
Wholesale trade	23.9	28.6	28.1	27.8	27.3
Retail trade	49	55.7	56.6	53.6	53
Transportation, warehousing, and utilities	35.9	37.8	39.1	39.8	41
Information	29.7	32.3	33.6	32.7	35
Financial activities	29.6	27.6	27.3	26.1	27.5
Finance and insurance	26.2	24.5	24.5	23.1	24.4
Real estate and rental and leasing	39.5	36.5	35.4	34.8	36.5
Professional and business services	56.7	60	61.5	63.9	64.1
Education and health services	29.2	29.7	30.8	31.3	32.3
Educational services	25.6	26	28.3	28.5	27.4
Health care and social assistance	29.9	30.3	31.3	31.8	33.2
Leisure and hospitality	64.1	68.7	73.2	74.5	73.8
Arts, entertainment, and recreation	73.7	81.5	79.5	80.1	82
Accommodation and food services	62.5	66.6	72.2	73.6	72.5
Other services	39.4	39.2	43.3	38.2	43.8
Government	16.1	16.1	17.9	18.5	18.3
Federal	15.9	14	16.5	16.4	16.7
State and local	16.1	16.5	18.1	18.8	18.5
State and local education	15.5	14.6	16.8	17.2	16.7
State and local, excluding education	16.8	18.6	19.7	20.5	20.6

¹¹⁵ Adapted from “Annual Total Separations Rates by Industry and Region, Not Seasonally Adjusted,” Bureau of Labor Statistics, accessed March 16, 2018, <https://www.bls.gov/news.release/jolts.t16.htm>.

K. CYCLE TIME OF THE ACQUISITION PROCESS

Another consideration in the revolving door of the acquisition workforce at DHS is the cycle time associated with delivering capability to the end users. The longer it takes to deliver capability, the higher the risk of human capital turnover on a program.

Table 13 shows that it takes DHS, on average, 4.9 years to deliver an initial capability to the user.¹¹⁶ The program's baseline defines the initial operational capability (IOC) as the point at which the first group of end users is operating the new capability. Subsequently, the full operational capability (FOC) is when all intended users have received the capability and are operating it to support their mission. The average time for a program at DHS to declare FOC is 10.5 years. Table 13 demonstrates what the program's turnover could possibly be. Without a doubt, in practice, a program would not necessarily lose people who have not just come on board, depleting the tacit knowledge; this example just presents a worst-case scenario.

¹¹⁶ GAO, DHS Has Strengthened Management; Earlier Requirements Definition.

Table 13. Acquisition Cycle Times with Potential Program Turnover¹¹⁷

	Program	IOC	FOC	Average Attrition	IOC Turnover	FOC Turnover
CBP	ACE		4.1	0.04		0.16
	IFT		8.5			0.34
	LBI		2.1			0.08
	UH-60	10.3	14.5		0.41	0.58
	MEA	1.7	9.3		0.07	0.37
	NII		22.0			0.88
	TACCOM	0.8	7.3		0.03	0.29
	TECS Mod	3.8	6.6		0.15	0.26
FEMA	LSCMS	3.4	9.3	0.08	0.27	0.75
ICE	TECS Mod	4.7	5.9	0.06	0.28	0.36
NPPD	CDM	3.5	5.5			
	HART	2.7	5.4			
	NGN-PS	3	9.3			
TSA	PSP		6.4	0.06		0.39
	TIM	2.5	10.3		0.15	0.62
USCG	FRC	4.0	17.6	0.08	0.32	1.41
	H-65		11.1			0.89
	HC-130H/J		17.8			1.43
	HC-144A & C-27	12.3	16.1		0.99	1.29
	NSC		11.8			0.94
	OPC	10.9	23.2		0.87	1.85
USCIS	Transformation		7.7	0.04		0.31
DHS	Average	4.9	10.5	0.06	0.29	0.63

David Tate from the Institute for Defense Analyses presented a paper at the 2016 Acquisition Research Symposium entitled “Acquisition Cycle Time: Defining the Problem.” In the paper, he asserts that within the DoD there has been no major change in acquisition cycle times for Major Defense Acquisition Programs (MDAPs) in the last 25 years.¹¹⁸ MDAPs are to the DoD what programs on the MAOL are to DHS: large acquisition programs. Figure 25 shows the time to achieve IOC for a number of acquisition programs within the DoD.

¹¹⁷ Adapted from GAO, DHS Has Strengthened Management.

¹¹⁸ David M. Tate, “Acquisition Cycle Time: Defining the Problem,” *Proceedings of the Thirteenth Annual Acquisition Research Symposium*, 1 (April 2016): 74.

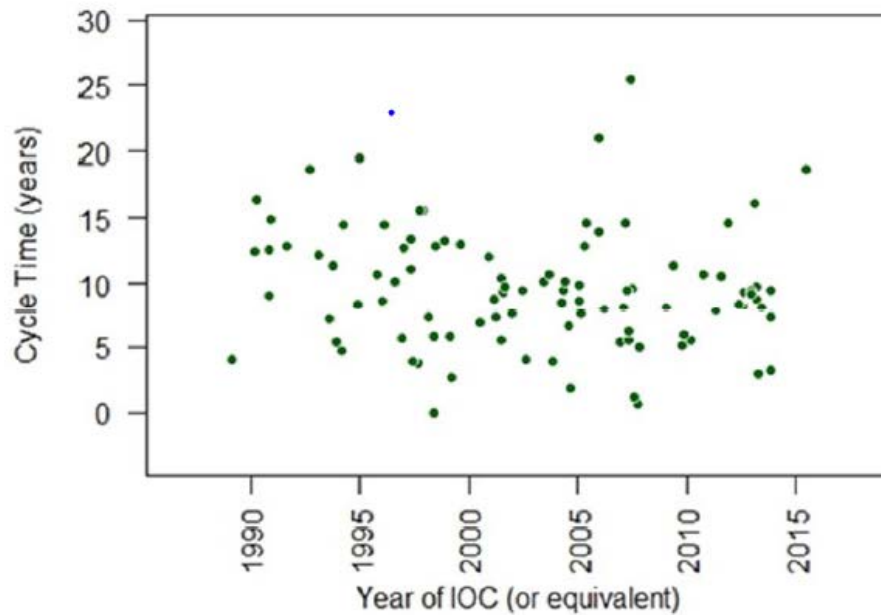


Figure 25. Program/Subprogram Cycle Time by IOC Year¹¹⁹

Tate expands on two key findings from Figure 25: First, “Statistical analysis confirms that the trend is indistinguishable from zero, and that the median cycle time has been roughly eight years over that entire span.”¹²⁰ Second, the median data hold true for all types of acquisition programs or commodity types, such as planes, sensor systems, tanks, and ships.¹²¹

If Tate were able to establish the DoD cycle time to IOC as a consistent eight years over a 25-year period, DHS is currently doing well in comparison; data in the GAO’s annual DHS acquisition reports indicate an average IOC declaration at 4.9 years. The DHS data set in many circumstances only spans eight to 10 years since the department has formalized acquisition and started collecting data. The data still should be of interest to the acquisition community at DHS, as it provides historical information to inform new programs when establishing the initial program baseline. A 2006 GAO report proclaims, “A hallmark of an executable program is shorter development cycle times, which allow

¹¹⁹ Source: Tate, 74.

¹²⁰ Tate, 74.

¹²¹ Tate, 75.

more systems to enter production more quickly.”¹²² Simply put, DHS should not expect programs to reach IOC in less than four years without significant schedule considerations and analysis of tasks to be completed.

There are a number of workforce considerations when discussing cycle times and attrition rates across the department. First is the turnover of human capital within the component and, perhaps more importantly, at the program level, where capabilities are developed and transitioned to the user. For example, the ICE TECS Mod program has the possibility of turning over 26 percent of the program’s workforce prior to FOC, 5.9 years into the program’s life-cycle. The disruption of 26 percent of a program’s workforce is certain to create additional challenges for a program manager already overly taxed with the business of delivering a capability.

Perhaps the greatest challenge, which is a challenge in itself to quantify, is the loss of tacit knowledge. Tacit knowledge, according to Peter Busch, is “knowledge, not data or information, insofar as the term tends to be used to describe knowledge that is far more heavily based on personal understanding or experience.”¹²³ Ashish Arora from Carnegie Mellon University, in an article published in the *Journal of Development Economics*, further describes tacit knowledge as “intangible knowledge, such as rules of thumb, heuristics, and other tricks of the trade.”¹²⁴ The DHS acquisition process is well documented, with whos, whats and whens well defined in instructions, manuals, and guides. The “how” to get something done is a challenge, however, and comes only with experience for the acquisition professional. The years of experience transition into tacit knowledge for the acquisition professional—knowledge not documented or captured anywhere else.

¹²² Katherine V. Schinasi, *DoD Acquisition Outcomes—A Case for Change*, GAO-06-257T (Washington, DC: Government Accountability Office, 2005), 6.

¹²³ Peter Busch, *Tacit Knowledge in Organizational Learning* (Hershey, PA: IGI Publishing, 2008), 3.

¹²⁴ Ashish Arora, “Contracting for Tacit Knowledge: The Provision of Technical Services in Technology Licensing Contracts,” *Journal of Development Economics* 50, no. 2 (August 1996): 233–56, [https://doi.org/10.1016/S0304-3878\(96\)00399-9](https://doi.org/10.1016/S0304-3878(96)00399-9).

L. TRANSFER RATE STUDY BY THE FEDERAL ACQUISITION INSTITUTE

In 2017, the Federal Acquisition Institute conducted a study specifically focused on the 1102, contracting, job series. However, many of the issues the study addresses can apply across the entire acquisition community. Unfortunately for DHS, the study identifies the department as experiencing the greatest net loss of contracting professionals between FY10 and FY15, as shown in Table 14.

Table 14. 1102 Job Series Agency Transfers: Largest Net Gains and Losses¹²⁵

Agencies with the Largest Net Gain (FY10 – FY15)		Agencies with the Largest Net Loss (FY10 – FY15)	
Agency	Net Gain	Agency	Net Loss
GSA	516	DHS	-253
VA	255	HHS	-145
USAID	191	DOT	-68
NASA	112	DOJ	-63
EPA	46	DOI	-44

The report does not specifically specify why DHS experienced a net loss of 253 contracting professionals; however, it does outline a few factors that may have influenced personnel to leave. The two primary reasons a contracting professional left were for professional development or career advancement opportunities, and dissatisfaction with the agency's leadership.¹²⁶ Highlighted in Table 15 are the other primary and secondary reasons contracting professionals left.

¹²⁵ Adapted from Federal Acquisition Institute, *GS-1102 Workforce Mobility Study* (Washington, DC: Federal Acquisition Institute, 2017), 9.

¹²⁶ Federal Acquisition Institute, 13.

Table 15. Factors in Transferring¹²⁷

Most Important Factor	Percent of Respondents	Second Most Important Factor	Percent of Respondents ²
Professional Development/ Career Advancement Opportunities	27%	Organizational Culture	15%
Agency Leadership (not including Immediate Supervisor)	19%	Compensation and Benefits	14%
Compensation and Benefits	11%	Immediate Supervisor/Team Lead	12%
Work/Life Balance	10%	Agency Leadership (not including Immediate Supervisor)	10%
Organizational Culture	8%	Personal Circumstances	10%
Nature of Work	7%	Professional Development/ Career Advancement Opportunities	8%
Personal Circumstances	7%	Organizational Culture	8%
Immediate Supervisor/Team Lead	5%	Workspace and Resources	5%
Other	5%	Nature of Work	4%

M. WHAT OPENS THE DOOR?

In his book *The 7 Hidden Reasons Employees Leave*, Leigh Branham identifies 19 primary reasons employees leave an organization, based on data from 3,149 exit interviews between 1996 and 2003. Branham used exit interviews collected from 18 different organizations to generate the data in his study, further highlighted in Figure 26.¹²⁸ Consistent with the FAI study, Branham found that career growth or promotion potential is the primary reason an employee leaves a current position. Branham's study dives into detail about why an employee may leave an organization, but he still asserts that dissatisfaction with leadership is a common reason.

¹²⁷ Adapted from Federal Acquisition Institute, 13.

¹²⁸ Leigh Branham, *The 7 Hidden Reasons Employees Leave* (New York: American Management Association, 2005), 19.

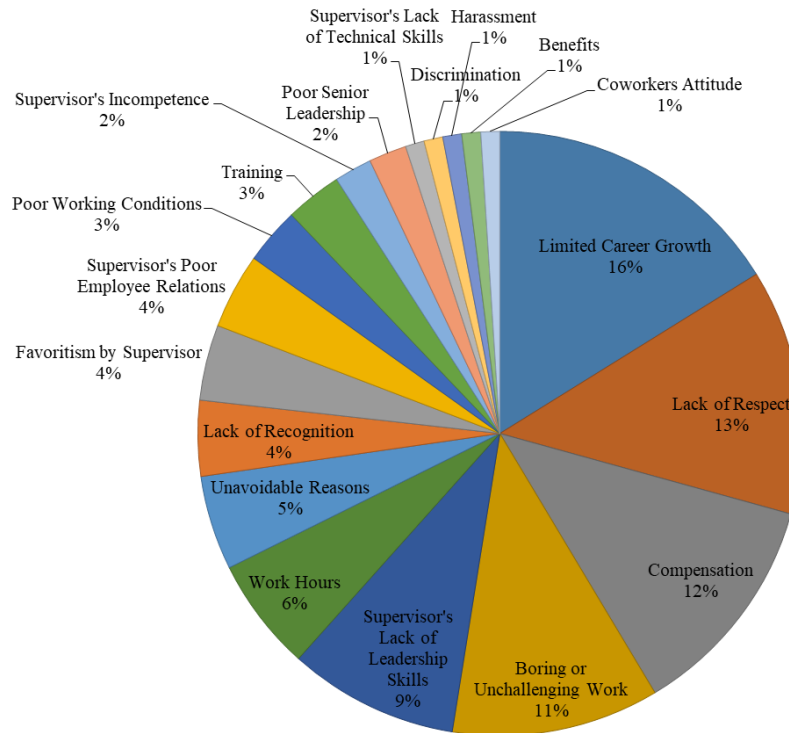


Figure 26. Why Employees Say They Leave¹²⁹

N. CONCLUSION

This chapter presented the primary reasons why employees in job series supporting the acquisition community left between 2013 and 2017. Data showed how many employees left, why they left, and the number of component breaches in a given year, including trends. A comparison between similar DHS and DoD job series suggested that DHS attrition rates are slightly lower in the acquisition community. Data from the Department of Labor Statistics highlighted attrition rates within the federal acquisition workforce, showing that both DHS and DoD have lower rates than many industries. The impact of cycle time on attrition was also discussed, along with Tate's cycle time study, which found that cycle times have not changed much over the years. Data from GAO reports, when consolidated, showed DHS's average IOC to be 4.9 years, and its FOC to be 10.5 years. The FAI study conducted in 2017 showed movement data of the 1102 contracting workforce, discussing

¹²⁹ Source: Branham, 21.

the primary reasons why those professionals change careers or at least agencies within the federal government. The FAI findings correlate with Branham's work, which went into more detail about why employees leave an organization, with the leading cause being to seek career growth.

The next chapter reviews what this attrition data means in regards to staffing of the acquisition workforce. A discussion of the required and actual staffing levels highlights potential concerns for acquisition programs that are working to mitigate the threat to the American homeland.

IV. DISCUSSION AND ANALYSIS

Building on the data in the previous chapter, this chapter begins by discussing staffing gaps within acquisition programs at DHS to demonstrate the actual impact of attrition, and therefore instability. The chapter then discusses how long it takes to hire a new person into a federal government office, which shows the amount of time that attrition deprives an acquisition program of key staff members.

A. STAFFING GAPS

Within an acquisition program, attrition does not always have a negative impact; depending on where a program is in its life-cycle, natural attrition may be desirable. The negative impact is felt when a staff member leaves while the program is still in need of his or her particular skill set, which creates a staffing gap. This section discusses the actual staffing requirements of major acquisition programs at DHS and gaps identified by the GAO.

DHS Instruction 102–01-006, entitled *Acquisition Program Management Staffing*, describes a critical acquisition position as follows:

Critical acquisition program management positions are those in which the primary duties are supervision, leadership, or oversight performed by experienced acquisition program management personnel. These positions typically include inherently governmental duties/functions. Major program offices need critical acquisition program management positions to be staffed with personnel who have the proper qualifications, skills, and in-depth experience in appropriate key acquisition disciplines based on the specific characteristics of the acquisition or program. These positions/individuals are typically accountable to the Program Manager for successful execution of the functions and activities of a key acquisition discipline, and are central to ensuring DHS acquisition programs meet Department missions and are effectively managed.¹³⁰

¹³⁰ DHS, *Acquisition Program Management Staffing*, 5.

The GAO's 2016 and 2017 annual reviews of major acquisition programs at DHS provided the data in Table 16, which compares DHS programs' acquisition staffing requirements with the number of personnel actually on roll. This table provides evidence that the need for human capital changes throughout the acquisition life-cycle. For example, FEMA's LSCMS program required an additional 1.5 personnel as it moved from FY16 into FY17, the CDM program for the National Protection and Programs Directorate (NPPD) needed an additional 21, and TSA's TIM program required an additional 16 personnel. When compared to the number of losses and on-board personnel, the shortages for these programs are certainly not from attrition alone, but from true staffing needs. The greatest increase in staffing is with the USCG's HC-144A and C27J programs, which required an additional 66 acquisition professionals. This table shows that DHS must approach staffing at a holistic level, accounting for personnel requirements and attrition; overall, the department was short 240 professionals in FY16 and 206 in FY17, closing the gap by only 34 people in a year. This data, however, cannot tell us the reason behind the remaining 206 acquisition professionals needed: Did the components hire more people to close the gap, only to have an equal number retire or depart for other reasons, causing the data to look as if the hiring process is not working adequately?

Table 16. Acquisition Program Staffing Gaps Identified in GAO Reports¹³¹

Component	Program	GAO-16-338SP		GAO-17-346SP			
		Need	Gap	Need	Gap	Critical	Critical Vac
CBP	ACE	196	15	196	15	15	1
	IFT	25	4	30	4	5	0
	LBI	33.55	7.4	33.55	7.4	4	0
	UH-60			16	3	5	0
	MEA			16	3	5	0
	NII	53.4	23.4	53.4	23.4	16	4
	TACCOM	50.6	8.6	50.6	8.6	11	0
	TECS Mod	38.35	2	38.35	2	8	0
FEMA	LSCMS	23.5	8	25	3	19	1
ICE	TECS Mod	20	0	20	0	11	0
NPPD	CDM	30	14	51	20	19	1
	HART			168	12	7	0
	NCPS	168	71	176	36	7	0
	NGN-PS	17.85	2.5	12	0	8	0
TSA	PSP	53	4	52	15	6	2
	TIM	24	24	40	4.8	5	0
USCG	FRC	50	5	48	3	8	0
	H-65	15	15	24.5	4	7	0
	HC-130H/J	15	4	17	3	2	0
	HC-144A & C-27J	15	4	81	6	3	0
	NSC	62	7	56	9	16	1
	OPC	20	3	29	7	13	5
USCIS	Transformation	102.5	18	132.34	17	50	1
	Across DHS	1012.8	239.9	1365.7	206	250	16

¹³¹ Adapted from GAO, DHS Has Strengthened Management; Earlier Requirements Definition.

As mentioned in Chapter III, the FY17 DHS workforce included 12,865 professionals.¹³² This number becomes important as we consider planning for human capital. With the total workforce and the number of staffing shortages, the acquisition community is operating without roughly 1 percent of its needed workforce.¹³³ The Bureau of Labor Statistics refers to this number as the organization’s vacancy rate. As shown in Figure 27, the DHS acquisition community’s vacancy rate is below the industry average, which in 2018 is 4 percent.¹³⁴

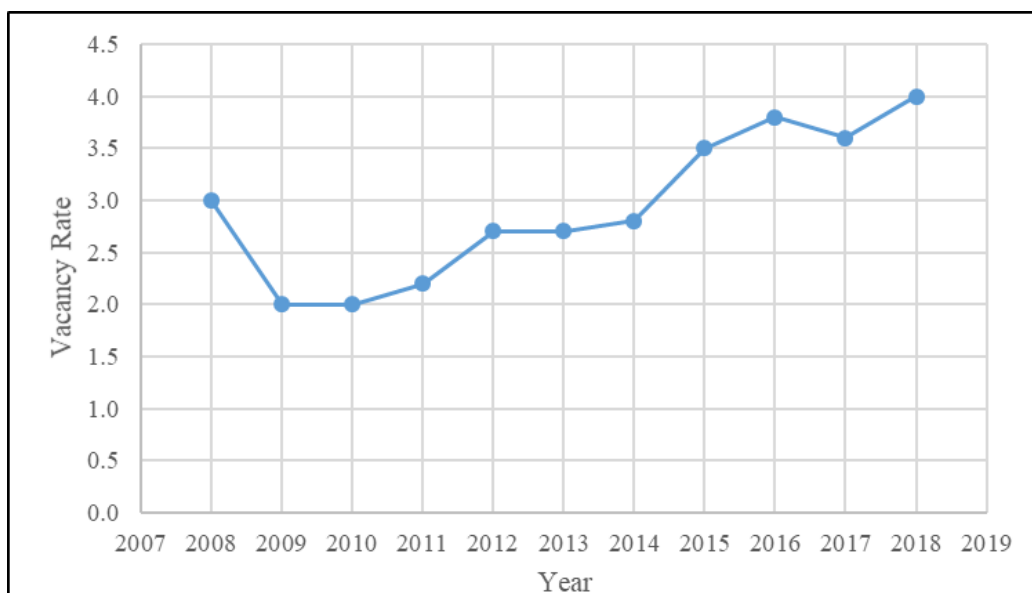


Figure 27. Industry Annual Job Vacancy Rates¹³⁵

¹³² DHS Office of the Chief Procurement Officer, *Human Capital Plan*, 4.

¹³³ This was calculated by taking the number of vacancies within the acquisition programs (206 in FY17) and dividing it by the total number of acquisition professionals in FY 7 (12,865), resulting in a vacancy rate of 1 percent.

¹³⁴ “Job Openings and Labor Turnover Survey,” Bureau of Labor Statistics, accessed June 21, 2018, <https://data.bls.gov/timeseries/JTS00000000JOR>.

¹³⁵ Source: Bureau of Labor Statistics.

The staffing of both critical and non-critical acquisition positions supports the development of technologies needed by DHS operators who perform the department's frontline mission. These positions are no less important to the homeland security mission than are the department's frontline operators, such as border patrol, TSA, or immigration agents. While the vacancy rate is below the industry average, the media and the U.S. Senate have scrutinized the time it takes to hire a person to fill one of these vacant positions.¹³⁶

B. TIME-TO-HIRE CONSIDERATIONS

The federal government's hiring process is known for being cumbersome, complicated, and drawn out, as highlighted in a DHS report to Congress titled *Strategy to Reduce the Time-to-Hire*:

The Committee is concerned with the length of time it takes to hire an employee at several DHS components. According to information from the Office of Personnel Management, the average number of days to hire an employee at DHS was 146 days in 2013, while the Government-wide average was 90 days. Certain areas of concern are with the Department's law enforcement components such as CBP and the United States Secret Service where, on average, it takes 278 days and 327 days, respectively, to hire an employee. Non-law enforcement hires at the headquarters level take 106 days on average and 198 days for senior executive employees. The President's 2010 memorandum on improving the Federal Hiring and Recruitment process said, "Americans must be able to apply for Federal jobs through a commonsense hiring process and agencies must be able to select high-quality candidates efficiently and quickly." Unless the Department improves upon its lengthy hiring process, the best and brightest candidates will more than likely choose other Federal agencies or opt for the private sector.¹³⁷

Figure 28 shows the average number of days it took DHS to hire a new employee in FY11 through FY14. These data consist of all job series and not only the acquisition community. Furthermore, the data presented is for positions that require a security investigation—something that most acquisition billets require. In FY14, it took 163 days on average to hire a new employee at DHS. The average time to hire in FY13 was 146

¹³⁶ DHS Under Secretary for Management, *Strategy to Reduce the Time-to-Hire* (Washington, DC: Department of Homeland Security, 2015), 1.

¹³⁷ DHS Under Secretary for Management, 1.

days, and DHS had 19,645 employees, second to FY11, when DHS had 19,783 employees. This shows that several months pass before a new employee is brought onboard to replace an employee who decided to leave an acquisition billet. Another employee or couple of employees must absorb the workload of the missing employee during this time. The additional workload might contribute to burnout, which can potentially creating a domino effect from which a program can never recover.

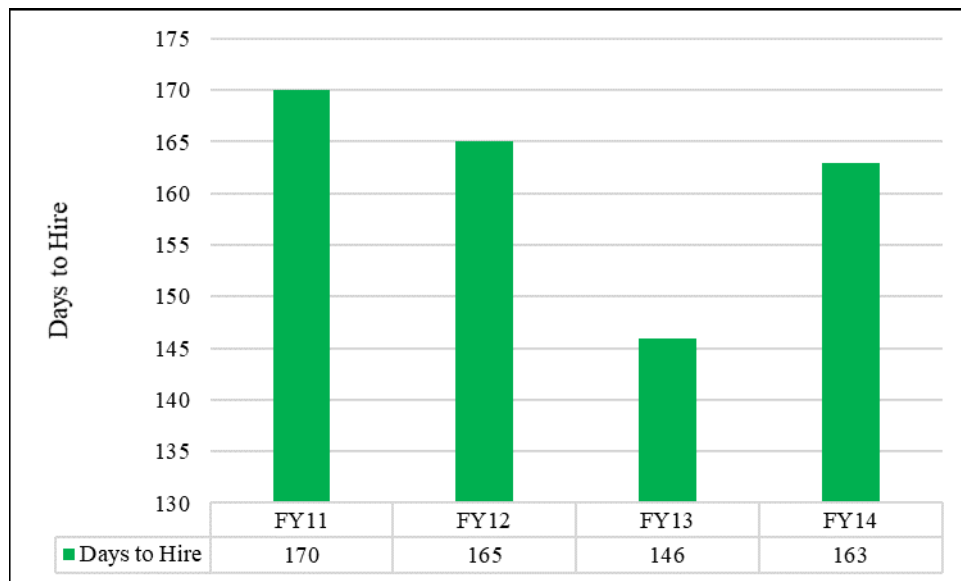


Figure 28. DHS Time to Hire FY11–FY14¹³⁸

For those acquisition professionals already working within a DHS component, the time-to-hire data show how long they may need to perform the additional duties of vacant billets. Additionally, program managers must be aware of how long it takes to bring on a new employee so they can adequately cross-level the vacant billet’s workload.

¹³⁸ Adapted from DHS Under Secretary for Management, 10.

C. CONCLUSION

While the DHS acquisition workforce vacancy rate is low when compared to industry, there is concern about the time it takes to hire a person to fill a vacancy. Furthermore, a simple comparison of vacancy rates between industry and DHS tells a potential job seeker that his or her efforts may be better spent looking to industry for a job, especially if that job is needed in a hurry. This puts DHS at further risk of not hiring the best-qualified candidates.

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V. CONCLUSION AND RECOMMENDATIONS

A. CONCLUSION

This conclusion answers the one primary research question and two sub-questions introduced in the first chapter:

- Is there instability in the DHS acquisition workforce?
- What is the attrition rate of the acquisition workforce at DHS?
- What are the primary factors contributing to attrition of the acquisition workforce?

To answer the primary question, the researcher collected and analyzed data and provided a definition for instability. For this study, instability was defined as any attrition data point for a job series that is above the component's average attrition for a particular year. At the department level, with 270 data points available, 82—or 30 percent—of the data points were above the component's annual attrition rate. While there is no standard or industry comparison to further define instability, the researcher feels the DHS acquisition workforce is stable based on the data available. However, DHS should take note and further investigate potential acquisition workforce instability in both CBP and ICE, for which 60 percent of the data points fell above the component average, pointing to instability.

To answer the first sub-question, the attrition rate of acquisition professionals at DHS was discussed in detail throughout Chapter III. Table 17 presents the components' overall acquisition discipline attrition rates, averaged over the five-year study period (listed in from least to greatest). CBP and USCIS have the lowest attrition rates in the department, both at 4 percent. While CBP's average attrition rate was low, the data, when reviewed in their entirety, still suggest some level of acquisition workforce instability, as previously mentioned. Headquarters, at 9 percent, and FEMA, at 8 percent, round off the top three highest attrition rates within the DHS acquisition system. ICE's acquisition workforce attrition rate is the highest (10 percent) of all the components evaluated in this study.

Table 17. Average Acquisition Workforce Attrition Rates by Component of Study Period¹³⁹

CBP	4%
USCIS	4%
S&T	7%
TSA	7%
USCG	7%
USSH	7%
FEMA	8%
HQ	9%
ICE	10%

The second sub question—about factors that contribute to attrition—was addressed in Chapters III and IV; Chapter III explained why personnel left based on DHS-collected data, and Chapter IV provided further investigation. The primary causes identified for all job series were resignation and voluntary retirement.

Although an extensive research effort would be required to determine why attrition rates are higher in the acquisition community at DHS when compared to the components' average, the researcher proposes two possible causes: burnout and experience taken elsewhere.

1. Burnout

First identified in the mid-1970s by psychologist Herbert Freudenberger, burnout is exhaustion of cognitive, emotional, and physical energy in support of an individual's organizational goals.¹⁴⁰ Research to date has focused on the impacts and leading causes of burnout at the individual level; however, the impact of individual burnout to the organizational mission has been overlooked. The idea of burnout being a contributing factor to higher-than-average attrition rates is suggested based on the average time to achieve IOC or FOC for acquisition programs at DHS. The constant grind of daily work to

¹³⁹ Adapted from DHS Office of the Chief Human Capital Officer, "On-Roll Job Series."

¹⁴⁰ Robert Golembiewski, *Handbook of Organizational Behavior*, 2nd ed. (New York: Marcel Dekker, 2001), 327.

achieve success is all the more challenging when success criteria are not realized for almost five years. In *Handbook of Organizational Behavior*, Robert Golembiewski describes how employees' "initial job expectations and actual job experiences partly determines employee's reactions to their jobs, and there is some evidence to suggest that unmet job expectations are associated with burnout."¹⁴¹ Perhaps an employee in the acquisition community at DHS sets personal expectations and career objectives based on a program's milestone; when that milestone is delayed and additional work is required, burnout can set in, potentially leading to attrition.¹⁴² Golembiewski identifies seven consequences of burnout: attitude changes, job dissatisfaction, decreased organizational commitment, intention to quit, absence from work, poor job performance, and poor quality of personal life.¹⁴³ To counter these effects, Golembiewski proposes a number of options: worksite changes, orientation changes, training, and finally individual-level interventions.¹⁴⁴

2. Experience Taken Elsewhere

The training and certifications required of those in the DHS acquisition workforce ensure the department has people capable of delivering successful acquisition programs. Personnel who have senior-level certifications are marketable and highly desired in private industry. With the government unable to match private industry salaries, government acquisition professionals are often recruited by industry.

B. RECOMMENDATIONS

This research effort identified a number of recommendations for DHS's consideration. This section describes those recommendations in order of easiest to implement to hardest, with pros and cons or a brief discussion about the level of investment and return identified when appropriate.

¹⁴¹ Golembiewski, 343.

¹⁴² Golembiewski, 343.

¹⁴³ Golembiewski, 346.

¹⁴⁴ Golembiewski, 350.

1. Acquisition Research

DHS should consider forming an acquisition research team or program. An enormous amount of literature and data exist regarding acquisition, including that literature and data presented in this thesis. DHS should take advantage of existing resources to conduct research about its current acquisition challenges. An assessment, evaluation, and synthesis of existing information could raise the bar for the previously mentioned 50-percent success rate of acquisition programs.

Implementing such a program at DHS could be as simple as asking for volunteers who are interested in the cause, and seeking research topics from the components acquisition executives. Alternatively, the department could implement something more formal and structured. Since there is no direct mission need, a firm or restrictive schedule would not be required, and personnel would only conduct research as available. Alternatively, acquisition research projects could be included in an acquisition professional's career development model, as discussed in the next sub-section. DHS could also consider granting a number of continuing education unites required for maintaining acquisition certification for the researcher's efforts.

The only potential downside of this recommendation is that it will create additional work for personnel or volunteers. However, establishing an acquisition research program within DHS requires minimal if any investment other than personnel time. The program could help identify changes to the acquisition system, which could result in increased program success and therefore a high return on investment.

2. Acquisition Career Models

DHS does maintain an acquisition certification program to ensure its professionals have the education, training, and experience needed to fill positions. DHS does not currently maintain a professional development framework for its acquisition professionals. Figure 29 shows the DoD career model for its test and evaluation acquisition professionals.

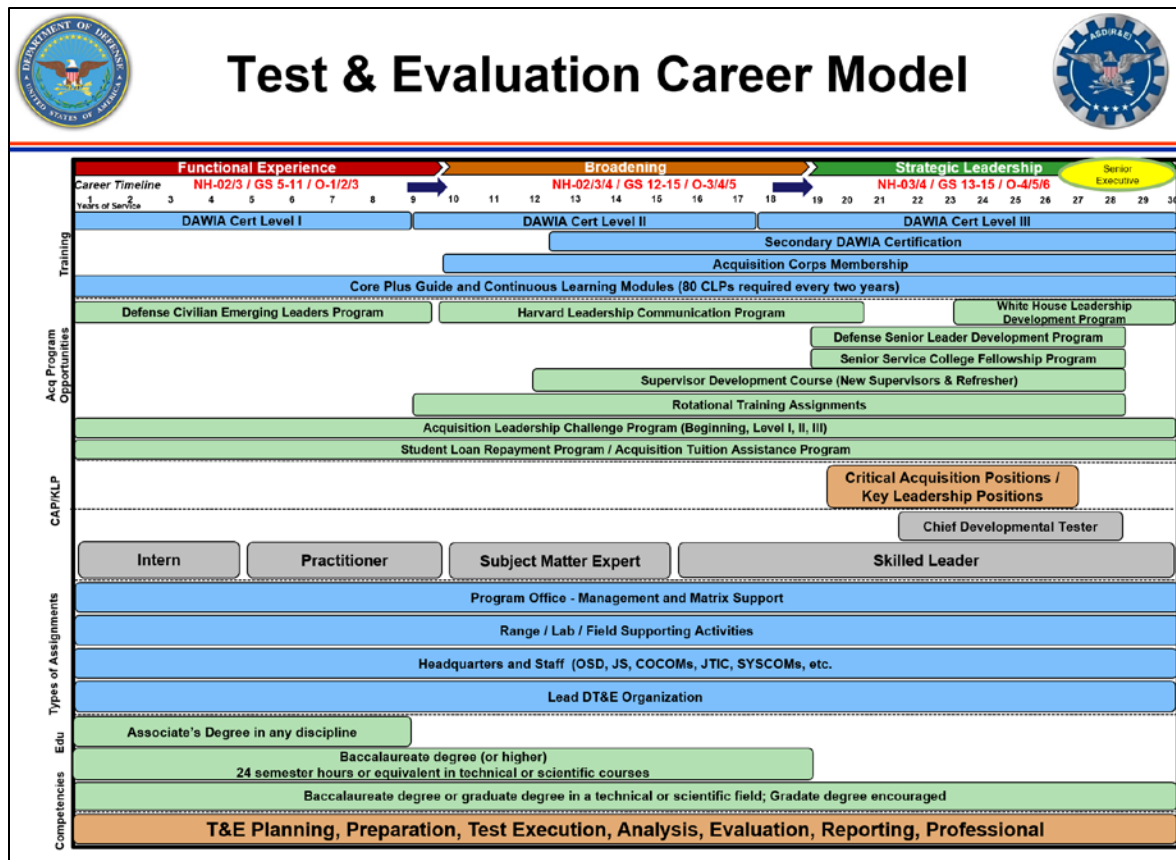


Figure 29. DoD Test & Evaluation Career Model¹⁴⁵

There are advantages to developing career models for the DHS acquisition workforce, which include identifying training requirements throughout an acquisition professional's career, identifying suggested assignments or positions, and finally identifying the critical competencies an acquisition professional should develop throughout his or her career.

Similar to the first recommendation, the investment needed to develop a career model for the DHS acquisition workforce is minimal, with the driving resource being time. The return on investment is once again high; this work could reduce attrition rates, increase employee satisfaction, offer a more diverse or experienced workforce, and improve acquisition program outcomes.

¹⁴⁵ Source: DoD, Acquisition Workforce Strategic Plan.

3. Exit Interviews

As the data in Chapter III showed, DHS is able to capture the primary reason a person leaves the department. Conducting further questioning, either through an exit interview or a survey, would allow DHS to categorize why people are leaving. Understanding why a person is resigning is one broad way to understand workforce attrition; knowing the specific reason—if the person is able to be honest about it—creates greater fidelity. This would allow management to take corrective action if needed, potentially resulting in lower attrition rates within the acquisition workforce.

To develop, conduct, and create a data repository for this recommendation, the key resource needed is, again, time. Human capital professionals certainly have access to existing exit interview templates, which can be customized for DHS, so this aspect of implementation is minimal. Time is the real challenge in making exit interviews more comprehensive. Moreover, departing employees are unlikely to be willing to sit down and discuss the specifics of their individual reasons for departing. Finally, DHS employees would need to create a repository to retain the data for future analysis. The preferred system would be a simple addition to an existing human capital database, which can be easily queried for data as needed. The return on investment for this recommendation may be the lowest of all recommendations, but it could help management make changes that result in decreased attrition rates.

4. Data-Driven Management and Policy

Data-driven management implies the use of all data sources to make management decisions. The acquisition workforce studied in this effort generates a significant amount of data. Using all the data to generate trends and predictive analysis lends itself to the potential to improve acquisition program outcomes. In the case of instability in the acquisition workforce, if DHS knows that after a breach in an acquisition program there is an increase in the number of personnel losses, management can plan accordingly when trying to overcome the breach.

How policy is developed and what data is used to justify or drive policy should be investigated within DHS. For example, with an average IOC declaration of 4.9 years, the

department should reevaluate the guidance published in DHS Instruction 102–01-006, *Acquisition Program Management Staffing*, which “recommends program managers serve a minimum of four years, or until the next ADE.”¹⁴⁶ This example raises two questions. First, Why did DHS determine that four years was appropriate for this recommendation? Based on the data in this study, five years may be a more appropriate time. Second, What is the likelihood that any one program manager is going to serve a consecutive five-year assignment in the same position? Both of these questions exemplify how data should be used to drive policy.

This recommendation comes with a slightly higher level of time investment needed to collect or gather data, analyze it, and finally present it in a fashion that will drive policy decisions. The return on investment for this recommendation is subjective. A deeper understanding of policy evaluation would be required to fully research its benefits.

5. Color the Workforce Purple

Chapter IV identified that DHS is short 206 acquisition professionals as of FY17. Past research conducted by Lieutenant Colonel John Lyle, while he was attending the Air War College, suggests consolidating the acquisition workforce at the DoD.¹⁴⁷ Furthermore, Lyle discovered that, of the 63 countries represented in the 1999 Air War College class of international students, the majority maintained a consolidated acquisition organization.¹⁴⁸ When Lyle asked the students why their countries consolidated acquisition offices, the answer was, “Our country cannot afford separate acquisition commands in each service.”¹⁴⁹ For DHS, this would translate into the consolidation of each or some of the components’ acquisition functions within the department. Furthermore,

¹⁴⁶ DHS, *Acquisition Program Management Staffing*.

¹⁴⁷ John M. Lyle, “Department of Defense Acquisition Workforce: Color Me Purple?” (thesis, Air War College Maxwell AFB, 1999), 3.

¹⁴⁸ Lyle, 34.

¹⁴⁹ Lyle, 34.

Lyle's work identifies a potential cost savings of almost 20 percent with consolidation of the United Kingdom's acquisition workforce.¹⁵⁰

In 1998, the Defense Science Board released a report about acquisition organizations and suggested creating an acquisition workforce manned by an increased number of generalists who have a larger knowledge and experience base than just one part of the acquisition process.¹⁵¹ A consolidation would have both near-term and long-term benefits.

Whether DHS considers a mass consolidation or a division of labor by commodity, greater efficiencies would result. A commodity consolidation would follow a DoD approach in which program executive offices manage acquisitions by type of commodity. The commodities developed by DHS include ships, aircraft (fixed and rotary winged), information technology, and a combined group of detection and sensor technologies. Another advantage to consolidation would be the potential cost savings of maintaining several separate physical acquisition shops across the department. All of DHS's component acquisition offices are physically located in various offices across the Washington, DC, metro area, which ranks 6th in the nation for the most expensive office space.¹⁵²

That said, according to Lyle, the components are likely to oppose implementing this "purple workforce" due to the enormous size of the DoD acquisition community. The same reservation may not hold true for DHS's acquisition workforce, as it is much smaller, and may therefore experience an easier transition process. Perhaps the greatest challenge for DHS would be funding. DHS is funded by a number of appropriations, which would make consolidation complicated. Ideally, for DHS, the appropriations would also be merged.

¹⁵⁰ Lyle, 35.

¹⁵¹ Lyle, 12.

¹⁵² Jeff Clabaugh, "DC Ranks No. 6 for U.S. Office Rents," WTOP, January 29, 2018, <https://wtop.com/business-finance/2018/01/dc-ranks-no-6-us-office-rents/>.

C. FUTURE RESEARCH

This section presents topics for future investigation, all with the intent to improve acquisition outcomes within DHS.

First, when the Office of the Chief Human Capital is able to identify personnel directly supporting acquisition programs, this study itself should be redone. Repeating this study with actual acquisition workforce numbers may yield different results than accounting for the entire job series. While this research speculates the results will be similar, the confirmation itself would be a worthwhile effort.

Future research should also explore the impact of the acquisition workforce attrition and staffing shortages on program effectiveness. For example, does a program that has high employee turnover cost more, take longer to deliver a capability, or experience a higher risk of breach?

Another potential research opportunity lies in the quality and resulting effectiveness of DHS's acquisition workforce certification program. Three factors drive acquisition certification requirements at DHS: experience, education, and training. Research should explore whether or not the department is evaluating an individual's experience adequately before that person receives a certification, and whether or not the current number of years of experience is adequate. Currently, only two certifications maintain a formal education requirement, for the systems engineering and contracting disciplines. Research should also determine if the training provided—including its content—effectively leads to certification, or if the material is inappropriate or has gaps.

Finally, DHS should conduct research to determine if acquisition employees are experiencing burnout. For example, How much of a program manager's time is spent in support of request for information from oversight bodies within the department? Or, How long does it take a program to write one of the many acquisition documents required within the acquisition life-cycle? Research of this nature will reveal trends and needs, driving process innovation or potentially acquisition reform within the department.

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LIST OF REFERENCES

- Arora, Ashish. "Contracting for Tacit Knowledge: The Provision of Technical Services in Technology Licensing Contracts." *Journal of Development Economics* 50, no. 2 (August 1996): 233–56. [https://doi.org/10.1016/S0304-3878\(96\)00399-9](https://doi.org/10.1016/S0304-3878(96)00399-9).
- Branham, Leigh. *The 7 Hidden Reasons Employees Leave*. New York: American Management Association, 2005.
- Bureau of Labor Statistics. "Annual Total Separations Rates by Industry and Region, Not Seasonally Adjusted." Bureau of Labor Statistics, accessed March 16, 2018. <https://www.bls.gov/news.release/jolts.t16.htm>.
- . "Employee Tenure in 2016." September 22, 2016. <https://www.bls.gov/news.release/tenure.nr0.htm>.
- . "Job Openings and Labor Turnover Survey." Accessed June 21, 2018. <https://data.bls.gov/timeseries/JTS000000000JOR>.
- Busch, Peter. *Tacit Knowledge in Organizational Learning*. Hershey, PA: IGI Publishing, 2008.
- Chapman, Mary. "You Can Work for the Federal Government." *Black Collegian* 40, no. 1 (September 2009): 8.
- Clabaugh, Jeff. "DC Ranks No. 6 for U.S. Office Rents." WTOP, January 29, 2018. <https://wtop.com/business-finance/2018/01/dc-ranks-no-6-us-office-rents/>.
- Clowney, Patrick, Jason Dever, and Steven Stuben. "Department of Defense Acquisition Program Terminations: Analysis of 11 Program Management Factors." *Acquisition Research Journal* 23, no. 3 (July 2016): 298–328.
- Coats, Daniel R. *Worldwide Threat Assessment of the U.S. Intelligence Community*. Washington, DC: Director of National Intelligence, February 2018.
- Cornell Law School. "Legal Information Institute." July 17, 2018. <https://www.law.cornell.edu/uscode/text/10/subtitle-A/part-II/chapter-87>.
- Customs and Border Protection. "About CBP." Accessed March 26, 2018. <https://www.cbp.gov/about>.
- Department of Defense (DoD). *Acquisition Career Development Program*. DoD 5000.52-M. Washington, DC: Department of Defense, 1995.

- . *Defense Acquisition Guidebook*. Washington, DC: Department of Defense, 2012. <https://www.dau.mil/guidebooks/Shared%20Documents%20HTML/DoDD%205000.01.aspx>.
- . *Defense Budget Overview*. Washington, DC: Department of Defense, 2017. http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2017/FY2017_Budget_Request_Overview_Book.pdf.
- . *Department of Defense Acquisition Workforce Strategic Plan*. Washington, DC: Department of Defense, 2015.
- . *Operation of the Defense Acquisition System*, Instruction 5000.02. Washington, DC: Department of Defense, 2015.
- Department of Homeland Security (DHS). *Acquisition Management Directive*. 102–01. Washington, DC: Department of Homeland Security, 2015. https://www.dhs.gov/sites/default/files/publications/01.%20Directive%20102-01%20Acquisition%20Management%20Directive_0.pdf
- . *Acquisition Management Instruction*. 102–01-001, Rev 01. Washington, DC: DHS, 2016.
- . *Acquisition Program Management Staffing*. Instruction 102–01-006. Washington, DC: Department of Homeland Security 2016.
- . *Acquisition Workforce Membership*. Washington, DC: Department of Homeland Security, 2014.
- . *Budget-in-Brief Fiscal Year 2017*. Washington, DC: Department of Homeland Security, 2017.
- . “Creation of the Department of Homeland Security.” September 24, 2015. <https://www.dhs.gov/creation-department-homeland-security>.
- . *DHS Lexicon Terms and Definitions*. Instruction Manual 262–12-001-01. Washington, DC: DHS, 2016.
- . *Master Acquisition Oversight List*. Washington, DC: Department of Homeland Security, April 2018.
- . “Operational and Support Components.” Department of Homeland Security, March 7, 2018. <https://www.dhs.gov/operational-and-support-components>.
- Department of Homeland Security Office of the Chief Human Capital Officer. “FY13–FY17 On-Roll Various Job Series.” Unpublished dataset, May 1, 2018.

- Department of Homeland Security Office of the Chief Procurement Officer. *Acquisition Workforce Strategic Human Capital Plan Fiscal Years 2013–2017*. Washington, DC: Department of Homeland Security, 2017.
- Department of Homeland Security Under Secretary for Management. *Strategy to Reduce the Time-to-Hire*. Washington, DC: Department of Homeland Security, 2015.
- Drezner, Jeffrey A., and Andrew R. Morral. *Reducing the Cost and Risk of Major Acquisitions at the Department of Homeland Security*. Santa Monica, CA: RAND, 2013.
- Edwards, Chris. “Department of Homeland Security.” Downsizing the Federal Government, July 12, 2017. <https://www.downsizinggovernment.org/homeland-security>.
- Federal Acquisition Institute. *GS-1102 Workforce Mobility Study*. Washington, DC: Federal Acquisition Institute, 2017.
- . “Legislative Authority.” Accessed March 21, 2018. <https://www.fai.gov/drupal/about/legislative-authority>.
- Federal Emergency Management Agency (FEMA). “About the Agency.” Accessed March 26, 2018. <https://www.fema.gov/about-agency>.
- Goldenkoff, Robert. *DHS’s Actions to Recruit and Retain Staff and Comply with the Vacancies Reform Act*. GAO-07-758. Washington, DC: Government Accountability Office, 2007.
- Golembiewski, Robert. *Handbook of Organizational Behavior*, 2nd ed. New York: Marcel Dekker, 2001.
- Government Accountability Office (GAO). *Agencies Need to Better Define and Track the Training of Their Employees*. GAO-02-737. Washington, DC: Government Accountability Office, July 2002.
- . *DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*. GAO-16-338SP. Washington, DC: Government Accountability Office, March 2016.
- . *DHS’s Actions to Recruit and Retain Staff and Comply with the Vacancies Reform Act*. GAO-07-758. Washington, DC: Government Accountability Office, 2007.
- . *Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress*. GAO-17-346SP. Washington, DC: Government Accountability Office, 2017.

- . *Major Program Assessments Reveal Actions Needed to Improve Accountability*. GAO-15-171SP. Washington, DC: Government Accountability Office, 2015.
- Harris, Carol C. *Immigration Benefits System Significant Risk in USCIS's Efforts to Develop its Adjudication and Case Management System*. GAO-17-486T. Washington, DC: Government Accountability Office, 2017.
- Immigration and Customs Enforcement. "What We Do." Accessed, March 6, 2018. <https://www.ice.gov/overview#wcm-survey-target-id>.
- Jones, Wilber D. Jr. *Arming the Eagle*. Ft. Belvoir, VA: Defense Systems Management College, 1999.
- Kochanowski, Yvonne J. "Human Capital Management in Government: Replacing Government Retirees." *Journal of Health and Human Services Administration* 34, no. 1 (2011): 85–108.
- Kossiakoff, Alexander, William Sweet, Samuel Seymour, and Steven Biemer. *Systems Engineering Principles and Practice*, 2nd ed. Hoboken, NJ: John Wiley & Sons, 2011.
- Lawrence, Philip and James Scanlan. "Planning in the Dark: Why Major Engineering Projects Fail to Achieve Key Goals." *Technology Analysis & Strategic Management* 19, no. 4 (2007): 509–25.
- Lyle, John M. "Department of Defense Acquisition Workforce: Color Me Purple?" Thesis, Air War College Maxwell AFB, 1999.
- National Defense Industrial Association Systems Engineering Division (NDIA). *Report on Systemic Root Cause Analysis of Program Failures*. Washington, DC: Department of Defense, 2008.
- Office of Personnel Management. "FedScope Employment Cubes." Accessed January 25, 2018. <https://www.fedscope.opm.gov/employment.asp>.
- . "Separations by Other than Retirement." In *The Guide to Processing Personnel Actions, through Update 72*. Washington, DC: Office of Personnel Management, 2017. <https://www.opm.gov/policy-data-oversight/data-analysis-documentation/personnel-documentation/processing-personnel-actions/gppa31.pdf>.
- Painter, William, and Barbara Schwemle. *Department of Homeland Security Appropriations: FY 2016*. CRS Report No. R44053. Washington, DC: Congressional Research Service, 2016.
- Project Management Institute. *Project Management Body of Knowledge*, 4th ed. Newton Square, PA: Project Management Institute, 2008.

- Schinasi, Katherine V. *DoD Acquisition Outcomes—A Case for Change*. GAO-06-257T. Washington, DC: Government Accountability Office, 2005.
- Secret Service. “The Investigative Mission.” Accessed April 26, 2018. <https://www.secret.service.gov/investigation/>.
- . “The Protective Mission.” Accessed April 26, 2018. <https://www.secret.service.gov/protection/>.
- Sonsino, Daniel. “Viewpoint: Does Attrition Still Matter?” *HR Magazine*, October 2017. <https://www.shrm.org/hr-today/news/hr-magazine/1017/Pages/does-attrition-still-matter.aspx>.
- Tate, David M. “Acquisition Cycle Time: Defining the Problem.” *Proceedings of the Thirteenth Annual Acquisition Research Symposium*, 1 (April 2016): 73–88.
- Transportation Security Administration. “Mission.” Accessed April 26, 2018. <https://www.tsa.gov/about/tsa-mission>.
- Trump, Donald J. “Executive Order: Border Security and Immigration Enforcement Improvements.” The White House, January 25, 2017. www.whitehouse.gov/presidential-actions/executive-order-border-security-immigration-enforcement-improvements/.
- United States Coast Guard. “Missions.” Accessed April 26, 2018. <https://www.overview.uscg.mil/Missions/>.
- U.S. Citizenship and Immigration Services. “About Us.” Accessed 26 April 2018. <https://www.uscis.gov/aboutus>.
- U.S. Citizenship and Immigration Services Ombudsman. *Annual Report 2017: Citizenship and Immigration Services*. Washington, DC: Department of Homeland Security, 2017.

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