COHESION, FLEXIBILITY, AND THE MEDIATING EFFECTS OF SHARED VISION AND COMPASSION ON ENGAGEMENT IN ARMY ACQUISITION TEAMS

By

Edward Straub

Submitted in Partial Fulfillment of the Requirements for the Quantitative Research Report
in the Doctor of Management Program
at the Weatherhead School of Management

Advisors:
Richard Boyatzis, Ph.D.
Kathleen Buse, Ph.D.
Eugene Pierce, DM

CASE WESTERN RESERVE UNIVERSITY

April 2015

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
31 AUG 2015		**00-00-2015 to 00-00-2015**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
COHESION, FLEXIBILITY, AND THE MEDIATING EFFECTS OF SHARED VISION AND COMPASSION ON ENGAGEMENT IN ARMY ACQUISITION TEAMS	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) **Edward Straub**	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **US Army RDECOM-TARDEC,6501 E. 11 Mile Road,Warren,MI,48397-5000**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
See Report

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a REPORT **unclassified**	b ABSTRACT **unclassified**	c THIS PAGE **unclassified**	**Same as Report (SAR)**	**64**	

Edward Straub

ABSTRACT

This study examines shared vision and compassion as mediating factors and their impact on the effect of cognitive cohesion, emotional cohesion, and flexibility on individual engagement. For over 50 years defense acquisitions have been studied with little improvement in how weapons systems are developed and delivered to the U.S. military. This study takes a novel perspective in analyzing army defense acquisitions teams taking cues from systems theory, emotional intelligence, and family systems. Our survey of 412 individuals in an Army Life Cycle Management Command revealed an interesting link between individual team member perceptions regarding team cohesion and flexibility and the individual's level of engagement in a team environment. Both compassion and shared vision are significant mediators of these effects. Our results are in keeping with extant literature on family business systems which points to the importance of group cohesion and flexibility for sustainable positive performance. Army acquisition teams may benefit from applying techniques, or *best practices*, used by family business to balance team cohesion and flexibility for improved program performance.

Edward Straub

Table of Contents

INTRODUCTION

Since 1994, the army has averaged spending over $1B per year in development, test, and engineering funds on programs that are ultimately cancelled (Decker & Wagner, 2011, p. 163). Since 2004, this figure has been between $3.3B and $3.8B (Decker & Wagner, 2011, p. x). Additionally, the Defense Department budgets over $7 billion every year on business systems[1] to help manage the immensely complicated process and reporting requirements associated with Defense Acquisitions (Office of the Deputy Chief Management Officer: version 2.0, 2013).

Going back fifty years to the first major studies and blue ribbon panels commissioned to study defense acquisitions, findings have focused on structure, process, and professional acumen (Fox, Allen, Lassman, Moody, & Shiman, 2011). The Fitzhugh Commission in 1970 and the Packard Commission in 1986, Defense Science Board (DSB) studies in the early 2000's, and other major reports such as the Army's Gansler Report in 2007 all emphasize the use of *best practices* generally leveraged from commercial business and industry (Fox et al., 2011; Schwartz, 2009). Acquisition reform efforts continue apace through the Better Buying Power initiatives and legislation such as the Weapons System Acquisition Reform Act (WSARA) (Schwartz, 2009, 2013). As usual, Congress and the DOD expect different outcomes from these latest attempts to improve processes, add oversight, and prescribe additional rules[2].

Over the years, as spending on project and portfolio management tools, training, and software has increased and as oversight has become more prescribed, it has become more

[1] The Department of Defense (2008, p. 74) defines a business system as "an information system, other than a national security system, operated by, for, or on behalf of the Department of Defense, including financial systems, mixed systems, financial data feeder systems, and IT and information assurance infrastructure. Defense business systems support business activities such as acquisition, financial management, logistics, strategic planning and budgeting, installations and environment, and human resource management."

[2] A quote widely, but probably inaccurately, attributed to Albert Einstein says that the definition of insanity is doing the same thing over and over again expecting different results (http://www.gizmodo.com.au/2014/03/9-albert-einstein-quotes-that-are-totally-fake/).

difficult and costly to deliver new technology into the hands of servicemen and servicewomen (Fox et al., 2011). Seemingly the more DOD spends on training, analyses, teaming, and reorganizations the worse the problem gets. Recently, in an assessment of defense acquisitions, the Defense Business Board evaluated over 300 reviews of the acquisition system conducted since 1986 (Punaro, 2012). Standing out among their recommendations was their conclusion that the acquisition system was beyond repair, should be scrapped, and DOD start from scratch with a new system for developing, procuring, and maintaining weapons systems (Punaro, 2012). In addition to this alarming recommendation, simple math shows us that 300 studies between 1986 and 2012 equal an average of about **one study per month for 26 years** - all examining defense acquisitions. This is the problem facing DOD: The system has been studied continuously yet seems to defy improvement despite recurring recommendations and changes to process and structure (Decker & Wagner, 2011; Fox et al., 2011; Gansler, 2007; Kadish et al., 2006; Packard, 1986). What are we missing?

Through all of this, thousands of dedicated professionals devote themselves to learning and working within, *or in spite of*, the system to provide equipment to a globally dominant military (Kendall, 2014). Structure is a theme common to all earlier studies of Defense Acquisitions: studies of system inputs, processes, and outputs. This emphasis could be because of the principal-agent dilemma, in which the agent acts on behalf of the principal but the principal suffers from an information disadvantage with respect to the agent. In Defense Acquisitions, the principal is the taxpayer, or Congress acting on the taxpayer's behalf, and the agents are the participants in the Defense Acquisition System. In this case, the principal's best recourse to ensure the agent is acting truthfully and in the principal's best interest is to control or monitor the agent's activities or measure the overall outcome (Eisenhardt, 1989).

The *context* in which the Defense Acquisition System model is executed is assumed to be a cybernetic model in which inputs are known and processed into outputs with feedback providing status or course corrections. But the external environment is a dynamic and complex, in short, it is a human system (Ball, 2012). Forty years ago, Bowers, Franklin, and Pecorella (1973, p. 1) identified the need to address the human aspect, "The nation has a great need for development of its organizational capacity to cope with problems, and that organizational capacity for purposeful development stands at present confused and inept for the task." Extant literature is lacking in this examination of the human element within the system. Our research seeks to address this gap. Quantifying the impact of team dynamics in Defense Acquisitions through an alternative lens may provide actionable insight for real and lasting improvement.

To be clear, this research is not a study of regulations and processes; nor is it a study of funding alignment or an assessment of the military-industrial complex. Congress will always be a factor and funding will always be constrained. This study is an examination of the people who have dedicated a significant portion of their lives and often entire careers to deliver and sustain equipment on behalf the men and women who have volunteered to put themselves in harm's way in the defense of their nation. This is a study of how these people perceive their work environment and press on in spite of a broken system. In this endeavor we suggest a 180-degree turn from the historic (and still ongoing) attempts to identify and fix everything that is wrong and instead build on what is being done right.

THEORETICAL FRAMEWORK

Defense Acquisitions are carried out in a team-centric environment. A program manager is designated for every acquisition program (Department of Defense, 2008). Team members at

the PM level are responsible for developing plans, including exhaustive systems engineering plans and test and evaluation plans. They are also responsible for managing the program to cost, schedule, and performance objectives (Department of Defense, 2008). The program manager, or PM, is "responsible and accountable for the life cycle management of their assigned program from program initiation through demilitarization and disposal" (U.S. Army, 2011, p. 2). Typically the PM is supported by a deputy PM and a staff responsible for various functions such as engineering, finance, logistics, and test and evaluation (Schwartz, 2009). These functions conceptually work together in intricate sets of sequential and parallel processes. PMs usually belong to a life-cycle management command led by a general officer or civilian executive under whom research & development and sustainment activities are integrated. These activities also have team organizational structures similar to the PM, but with different names. Cross-functional teams called integrated product *or project* teams (IPTs) are created from across the PM, R&D, and sustainment communities to address specific issues at various times during a product's life cycle (Department of Defense, 2007; Eide & Allen, 2012; Kadish et al., 2006).

In business today teams are used to accomplish a myriad of tasks and projects and their use has become the norm (Tannenbaum, Mathieu, & Cohen, 2012). The employment and study of work teams has gained in popularity in recent decades since the early academic studies of teams and team performance. Today the study of teams encompasses a broad swath of task areas and professions from sports, military, production, and service to professional, white collar teams (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Mathieu, Maynard, Rapp, & Gilson, 2008; Neuman & Wright, 1999; Pearson, Bergiel, & Barnett, 2014; Pescosolido & Saavedra, 2012; Sundstrom, de Meuse, & Futrell, 1990). Strictly speaking, a work team is "two or more individuals performing organizationally relevant tasks with common goals and task

interdependencies" (Kozlowski & Bell, 2012, p. 415). Teams form the middle levels of the mutli-level realities that make up industries and economies: Individuals constitute and function within work teams, which constitute and function within organizations, which constitute and function within broader operating environments (Kozlowski & Bell, 2012; Mathieu et al., 2008; Sundstrom et al., 1990). Team dynamics occur and are developed, therefore in specific environments with simultaneous influence from both top-down organizational constraints and bottom-up individual preferences and norms (Kozlowski & Bell, 2012). Defense acquisition work teams operate in a small world network (Straub, 2013) which means that within a few steps anyone can reach out to just about anyone else and the members are generally known to one another (Kadushin, 2012). Any cursory internet search of company websites will reveal the metaphor of an organization as a "family" and because the nature of Defense Acquisition programs plays out over decades and employees generally stay for extended tenures, relationships and identities are co-developed over years with teammates, role models, leaders, and perceived antagonists. With hierarchical roles and weight ascribed to experience, the family metaphor in Defense Acquisition teams is particularly apt; however, industrial revolution definitions and organizational structure continue to hold without question (Chandler Jr. & Hikino, 1994; Laloux, 2014).

Dynamic team processes and interaction creates emergent knowledge and capabilities greater than the sum of its individual member parts (Salas & Fiore, 2004). This concept of team cognition as well as the concept of team mindfulness are changing the way we understand team effectiveness (Mathieu et al., 2000; Salas & Fiore, 2004; Weick, Sutcliffe, & Obstfeld, 2008). In their study of the impact of team empowerment on work team effectiveness Kirkman & Rosen (1999, p. 62) cite nearly a dozen earlier studies that exclusively define effectiveness in terms of

outcomes such as productivity, quality, customer service, etc. Sundstrom, de Meuse, and Futrell (1990) suggest that team effectiveness is more than a measure of the quantitative output produced by the team and include an element of *viability* which speaks to a team's ability to continue performing work. Beal, et. al. (2003) suggest that team performance is best described as a behaviour vice an outcome due to the myriad uncontrollable variables that might impact outcomes. Key factors contributing to a team's viability include individual satisfaction and elements such as a willingness to continue working together, cohesion, and unsurprisingly, communication (Sundstrom et al., 1990). But these factors do not stand on their own – the context matters and studies of defense acquisitions to date carry the implicit assumption that the social structures of commercial work teams apply to defense acquisitions work teams. Some reports, specifically the highly influential Packard Commission Report (Packard, 1986, p. xxii) specifically seek to draw parallels between successful commercial and Defense Acquisitions projects:

> [T]here are certain common characteristics of successful commercial and governmental projects. Short, unambiguous lines of communication among levels of management, small staffs of highly competent professional personnel, an emphasis on innovation anti productivity, smart buying practices, and, most importantly, a stable environment of planning and funding-all are characteristic of efficient and successful management. These characteristics should be hallmarks of' defense acquisition.

Team dynamics and the environment within which teams exist are recursively created and modified (Bandura, 2001). Teams are developed in a specific environment with simultaneous influence from both top-down organizational constraints and bottom-up individual preferences and norms (Kozlowski & Bell, 2012). For individuals, to be engaged is to concurrently be in a prolonged mentally and emotionally "positive, fulfilling, work-related state… characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, Gonzalez-

Roma, & Bakker, 2002, p. 74). This can create a virtuous circle in which motivation, dedication, and satisfaction interact positively with job performance (Judge, Thoresen, Bono, & Patton, 2001; Ryan & Deci, 2000; Sonnentag, 2003). In work teams composed of members with complementary specialties brought together to perform a task (Salas & Fiore, 2004), individuals may not have experience in certain tasks required in a project phase outside their area of expertise. In high-functioning teams flexible individuals are empowered to bring richness and new perspectives to all phases (Weick et al., 2008).

Cohesion and flexibility are key determinants of team effectiveness (Burke, Stagl, Salas, Pierce, & Kendall, 2006). Cohesion is the bond between members of a group holding the group together (Beal et al., 2003; Hampson, Hulgus, & Beavers, 1991; Kadushin, 2012; Olson, 2000; Pescosolido & Saavedra, 2012). Flexibility is a critical characteristic required for innovative teams in the defense acquisition process (Apelian et al., 2004). Behavioural flexibility is the "capacity (and willingness) to competently engage in a variety of behaviors in response to different situation" (Lord & Hall, 1992, p. 140). Following the family metaphor identified earlier, flexibility is "the amount of change in leadership, role relationships, and relationship rules. The specific concepts include leadership (control, discipline), negotiation styles, role relationships, and relationship rules…. Flexibility concerns how systems balance stability with change" (Olson & Gorall, 2003). The importance of this balance, in the carefully planned, yet frequently changing, world of Defense Acquisitions is overlooked as control, the operant objective in industrial operations, is consistently viewed as the ideal state. Flexibility is also an individual characteristic in decision-making where the individual balances emotional response with logical or cognitive responses (Mayer & Salovey, 1995).

Architects of the defense acquisition system have sought to replicate 'best business practices' for decades (e.g. Fox et al., 2011; Kadish et al., 2006; Kendall, 2012; Packard, 1986) under the implicit, often explicit, assumption that defense acquisitions *should* be run like industrial revolution-era, commercial businesses. No one has stopped to consider the contextual differences between commercial business and defense acquisitions and whether striving to make one like the other is feasible or appropriate. Families and family business, with many similarities at the team level in Defense Acquisitions in terms of enduring relationships, dynamics environments, hierarchical organization, and evolving roles may provide a new metaphor against which to frame business practices.

The similarities and differences between commercial industry and defense acquisitions

In 2014, the median tenure of an employee in the federal government across all areas was 8.5 years. This is more than twice that of employees in private industry[3]. At the time of the Packard Commission in the mid 1980's the statistics were similar: the median tenure of an employee in private industry was about half that of the federal government[4]. In Defense Acquisitions, the *average* tenure for a DOD civilian employee is 16.6 years (Carter, 2010). Forty years ago commercial companies did offer more incentives to employees, but today government organizations, especially the federal government, remain the stronghold of pension benefits designed to entice employees to stay for the long haul (Wiatrowski, 2012). In commercial industry today, the tendency is for employees to hop from job to job, but in defense

[3] According to the Bureau of Labor Statistics (http://www.bls.gov/news.release/tenure.t05 htm) the median tenure of employees in private industry was 4.1 years in 2014. In 2004, before the economic crisis, the difference was even more pronounced with federal government median tenure at 10.4 years and private industry median tenure 3.5 years.
[4] Again, the BLS (http://www.bls.gov/news.release/history/tenure_013097.txt) statistics for median tenure in private (non-agriculture) industry were 3.6 and 3.4 years in 1983 and 1987, respectively. Government median tenure (federal government statistics, which tend to have longer tenure were not distinguished from state and local government in the 1983 and 1987 BLS statistics) were 5.8 and 6.5 years, respectively.

acquisitions people stay. With a wide range of job opportunities and types across the system acquisition lifecycle, many of these employees also stay in a single geographic area. Over time, the density of the network increases and it seems that virtually everyone either knows or knows about everyone else, especially at the leadership levels (Straub, 2013). This can create a system where friendships and grudges, and alliances and avoidances occur over extended periods of time.

Defense acquisitions (Boone, 1983), like organizations, the economy, society, (Boisot & McKelvey, 2010) and families (W. R. Beavers & Voeller, 1983; Olson & Gorall, 2003; von Bertalanffy, 1972) is a dynamic system. Dynamic systems are characterized by their sensitive dependence on initial conditions, power law distributions, and emergent and self-organizing behaviour (Boisot & McKelvey, 2010; Mitchell, 2009; Richardson, 2008). Because of this, organizational research that focuses on one element of a system and assumes 'typical' data accurately substitutes for other system elements or inputs is inadequate. So when acquisition improvement initiatives address processes without addressing people and their relationships misses the forest for the trees. The power-law nature of dynamic complex systems demands a holistic assessment of the system (Boisot & McKelvey, 2010). A spate of research on organizational design in the 1970s and 1980s (Boone, 1983; Bowers et al., 1973; Clark, 1989; Spencer & Cullen, 1979) acknowledged the complexity of defense acquisitions building on von Bertalanffy's (1972) pioneering work in systems theory done a half century earlier, but this work is drowned in process analysis, reporting requirements, and structured adherence to 'best practices'. Defense Acquisitions is described in reductionist terms of inputs, processes, outputs, and the energy required from the many elements that come together to provide a product or output (Decker & Wagner, 2011; Fox et al., 2011). This view is incomplete because the people

and teams who execute the system are incorrectly assumed to be interchangeable cogs in a deterministic and completely knowable system. Human systems, however, are open and we all have a need for emotional connectedness to properly function (Boyatzis, 2008). To date, the influences of individual flexibility and interpersonal relationships have not been meaningfully considered.

MODEL CONSTRUCTS AND HYPOTHESES

Straub (2014) uncovered a multi-level dynamic with eight factors[5] prominently contributing to individual satisfaction in defense acquisition projects. While the sequence of what precedes what is debatable (does job satisfaction precede job performance or does performance precede satisfaction?), there is little doubt as to the existence of a strong relationship (Judge, Thorsesen, Bono, Patton, 2001). Team cohesion (Beal et al., 2003; Mullen & Copper, 1994) and flexibility (Eby, Meade, Parisi, & Douthitt, 1999) have also been linked directly to work team performance. Many of the factors we identified in our exploratory study such as self-efficacy and autonomous motivation support well-known extant research on how individuals perceive and interact with the world (e.g. Bandura, 2010; Gagne & Deci, 2005). Other factors such as the importance of institutional processes and organizational structure confirm the vast majority of Defense Acquisition reports, analyses, and failed panaceas (e.g. Fox, Allen, Lassman, Moody, & Shiman, 2011; Kadish et al., 2006; Packard, 1986).

This study builds on Straub (2014) and evaluates the impact of cohesion, flexibility and quality of individual relationship on individual engagement in Defense Acquisitions.

[5] The eight factors resulting from our thematic analysis of interview transcripts are: (at the individual Level) Self-efficacy and meaningfulness (Kirkman & Rosen, 1999) & autonomous extrinsic motivation (Gagne & Deci, 2005); (at the team level) cohesion, flexibility, and communication; (at the organizational level) geography & environment, institutional processes, and organizational structure.

Relationship quality, defined as shared vision and compassion, is expected to mediate this relationship.

Dependent Variable (Individual Engagement)

Engagement is an individual's physical, mental, and emotional attachment to their work role (disengagement is the withdrawal from one's work role) (Kahn, 1990). People engaged in their work tend to find it interesting (Schaufeli et al., 2002). For individuals to be engaged is to concurrently be in a prolonged mentally and emotionally "positive, fulfilling, work-related state… characterized by vigor, dedication, and absorption" (Schaufeli et al., 2002, p. 74). This state can create a virtuous circle and flourishing environment in which motivation, dedication, and satisfaction can lead to improved performance and even improved individual health, probably as a result of reduced stress (Ryan & Deci, 2000; Sonnentag, 2003). Clearly it is important and healthy for an individual to be engaged in their job, but it is also important for the economy that individuals are engaged in their jobs. In 2002, Gallup estimated that disengaged workers cost the U.S. economy about $350B (Coffman, 2002). By 2013, Gallup's estimate of the cost of disengaged workers had risen to between $450-$550B (Sorenson & Garman, 2013).

Independent Variable (Cohesion)

As teams became more familiar with each other and the task, the importance of informal social networks is diminished relative to team performance. Having many close ties to other nodes (i.e. a 'dense' network) can be "laborious to maintain" and create additional drains on resources to maintain the strong bond (Balkundi & Harrison, 2006, p. 51). Additionally, many close bonds can lead to a person defining him- or herself by the way others see them or expect them to act; however, "[t]eams with dense configurations of ties tend to better attain their goals, and are more likely to stay together than teams with sparse configurations…. [and] teams with

leaders who are central in intragroup sets of connections tend to be more productive." (Balkundi & Harrison, 2006, p. 60).

Cohesion is the bond between members of a group (Beal et al., 2003). Examining social network theory, Kadushin (2012) describes cohesion as the social relations that hold a group together. Cohesion is "emotional bonding" (Olson, 2000, p. 145). It is a "social trust that facilitates coordination and cooperation for mutual benefit" (Putnam, 1995, p. 66). Individuals who are focused on being a cohesive member of a group are engaged in group activities and demonstrate group norms (Pescosolido & Saavedra, 2012). According to Pescosolido & Saavedra (2012) cohesion is not a construct that can be generalized to all situations. They argue that in non-sport settings (sports metaphors being some of the most frequently used in team study) the impact of cohesion as a factor is often misinterpreted because of confusion surrounding the contextual variability in which teams operate. Both Beavers & Hampson (2003) and Olson (2011) suggest that balanced levels of cohesion are more conducive to healthy functioning family systems than extreme high or low levels of cohesion, both of which can lead to dysfunction. In other words, the relationship is not linear, but curvilinear. While this may have an impact on overall team performance or effectiveness in the form of enmeshment or groupthink, the relationship to engagement is logically expected to be linear. In other words, the higher an individual perceives levels of cohesion to be, the greater their level of engagement.

According to Bjornberg and Nicholson (2007), emotional cohesion is particularly important in relationship building. Relationships and the actions we take today are impacted by the expected frequency and closeness of future interaction (Axelrod, 2006). Too much emotional cohesion can cause enmeshment and too little can lead to long-term conflict and dysfunction (W. R. Beavers & Hampson, 2003; Hampson et al., 1991). Dysfunction within a

group can present itself in many ways such as the tendency to withdraw or engage in malicious compliance. Because of this we hypothesize that:

H1a: Individual perceptions of emotional cohesion positively impact individual levels of job engagement.

Much of the literature on team cohesion treats the concept as monolithic (Beal et al., 2003; Dobbins & Zaccaro, 1986; Gully, Devine, & Whitney, 1995; Hampson et al., 1991; Olson, 2011; Pescosolido & Saavedra, 2012). Findings from our earlier research study suggest that Army Defense Acquisition teams may have important similarities with family business. We therefore leverage the distinction made between cognitive cohesion and emotional cohesion by Bjornberg & Nicholson (2007) summarized as the difference between organizational values, ideas, and norms versus emotional bonding. In situations where conflict arises, confusion or mistaking a disagreement between two people based on normative differences or organizational objectives for a personal attack or a betrayal of trust built up over years might have long-term repercussions and possibly take the form of avoidance or ongoing conflict; therefore:

H1b: Individual perceptions of cognitive cohesion positively impact individual engagement.

Independent Variable (Flexibility)

"Flexibility concerns how systems balance stability with change" (Olson & Gorall, 2003, p. 519). It includes in-progress adjustments to previously established processes or norms (Bandura, 1989). Leadership plays an important role a group's or organization's culture (Meek, 1988); therefore team member flexibility or adaptability to changes in leadership or leadership styles can be very important. We include in our definition of flexibility an individual's ability to cope or adjust to role expectations which are perpetuated through culturally-established

processes (Wolin & Bennett, 1984) as well as the ability to experiment with various options to solve problems or address issues (Boyatzis, Goleman, & Rhee, 1999).

There is debate in the family literature on whether flexibility follows the same function as cohesion in that both too much and too little are problematic (W. R. Beavers & Voeller, 1983; Hampson et al., 1991; Olson, 2011). The debate centers around the belief on one hand that too much flexibility leads to chaos (Olson, 2000) versus the counter argument that high levels of flexibility are really improvements in a group's adaptive response to changing environmental conditions (W. R. Beavers & Hampson, 2003). We believe the chain of command and institutional regulation in defense acquisitions will mitigate teams devolving into chaos as a result of being "too flexible." Because of this we suggest:

H2: Individual perceptions of flexibility positively impact individual engagement.

Mediating Variables (Shared Vision & Compassion)

Shared vision and *compassion* are critical elements of relationship quality, essential for individual engagement and team functioning (Boyatzis & Soler, 2012; Miller, 2014b). A shared vision is a common desired future state exists among a group of individuals, the individuals have hope that it can be achieved, and share enough identity to relate to it (Boyatzis & Soler, 2012; Boyatzis, 2006). Shared vision is closely related to group cohesion and, although there is debate as to which element precedes the other (Goleman, Boyatzis, & McKee, 2002; Jung & Sosik, 2002), shared vision has been shown to have significant influence on job engagement, leadership effectiveness, performance, and functioning (Boyatzis & Soler, 2012; Miller, 2014b).

H3: Shared vision mediates the effects of cognitive cohesion (H3a) and emotional cohesion (H3b) on individual engagement.

Compassion is closely related to the social intelligence dimension of social awareness in that it involves acting on the empathy one feels for others or actively caring about their feelings[6] (Boyatzis, Smith, & Blaize, 2006). Social Intelligence (SI) itself is "'acting wisely in human relations'" (Goleman, 2006, p. 11). It builds on the social awareness element of EI and adds to it what Goleman calls "social facility" or the ability to "smoothly" interact with others through synchrony, self-presentation, influence, and concern (Goleman, 2006, p. 83). Engaging with others in the completion of job-related tasks and demonstrating an interest in those tasks is logical extension of this activity. The act of doing so will likely influence perceived levels of both cognitive cohesion (which are normative and idea-driven) as well as emotion cohesion (emotional closeness); therefore:

H4: Compassion mediates the effects of cognitive cohesion (H4a) and emotional cohesion (H4b) on individual engagement.

Because there are logical limits to our metaphor of defense acquisition teams as a family system, we believe the chain of command and institutional regulation will mitigate teams devolving into chaos as a result of being too flexible as predicted by Oslon (Olson, 2000). Transformational leadership emphasized widely across leadership programs in the 1980s and 1990s, suggests leaders support their employees after having created a shared vision or objective around which those team members can rally (Bass, 1990; Mayer, Roberts, & Barsade, 2008). A properly developed and communicated *shared vision*, frequently emphasized in military and civilian defense leadership training, will serve as a reference point for individuals guiding their actions and involvement. Because of this we suggest:

[6] Boyatzis, Smith, & Blaize, 2006 (p. 13) define compassion in terms of three elements: "(1) empathy or understanding the feelings of others; (2) caring for the other person (e.g., affiliative arousal); and (3) willingness to act in response to the person's feelings."

H5: Shared vision (H5a) and compassion (H5b) mediate the effect of individual perceptions of flexibility on job engagement.

People perceive their work environment differently based on earlier experiences bringing with them differing perspectives, values, and toolsets (Seong, Kristof-Brown, Park, Hong, & Shin, 2012). People with fewer professional experiences have fewer bases for comparison which may influence their worldviews. An individual's worldview is a simplification of how they perceive and understand the world around them and how they relate to other in their organization (Weick et al., 2008). The degree to which individual's share their worldview, norms, and values with their coworkers is their cognitive cohesion (Björnberg & Nicholson, 2007). People with more professional experiences will have been exposed to a wider range of these elements than people with fewer (i.e. 1 or 0) other jobs.

H6: The number of previous professional jobs (high>2; low<=1) moderates the effect of cognitive cohesion on engagement.

People with more professional job experience should have been exposed to a greater number of varied options which may be applied to overcoming problems or adapting to change. Additionally, people who have had fewer outside jobs are more likely to be rooted in routine and institutional norms (Seong et al., 2012) potentially having less compassion, or empathy, for other with opposing viewpoint. This lack of compassion for others may translate into withdrawal in a team environment like that found in defense acquisitions. Alternately, people with fewer external experiences, who are more firmly rooted in the establishment and the *in's and out's* of a system may be more adept at implementing work-around solutions or temporary fixes to unforeseen problems. Because of this:

H7: The number of previous professional jobs (high>2; low<=1) moderates the effect of flexibility on (H7a) shared vision and (H7b) compassion.

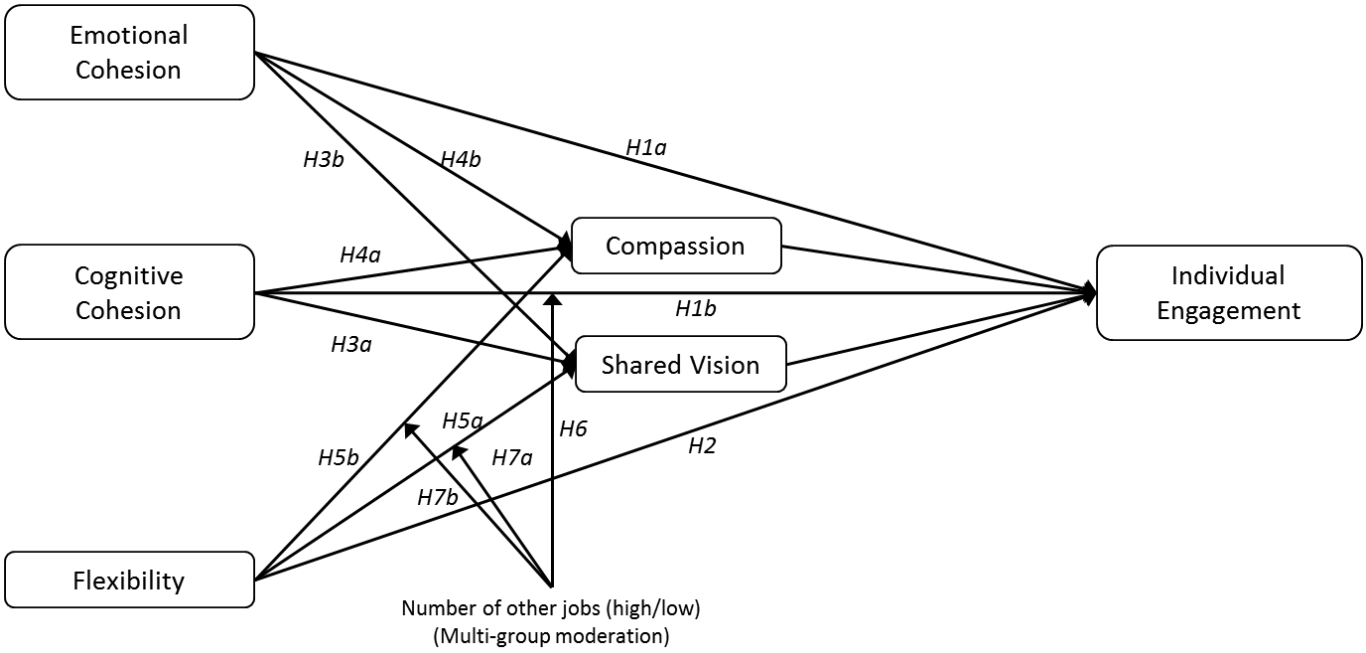

Figure 1: Hypothesized Model

METHODOLOGY

Measures

Cohesion

Bjornberg & Nicholson (2007) distinguished emotional from cognitive cohesion in their application of family systems theory to family business analysis. The Family Climate Scale (FCS) (Björnberg & Nicholson, 2007) is the result. The scale adapted elements of various earlier scales used to assess healthy family functioning designed primarily for clinical application. Cohesion is a well-accepted factor in family functioning (R. Beavers & Hampson, 2000; Olson & Gorall, 2006) and work team analysis (Mathieu et al., 2008). FCS contains separate measures for both cognitive and emotional cohesion.

Cognitive cohesion is "based on norms and values that are shared and understood… [and] readily communicated." (Björnberg & Nicholson, 2007, p. 234). Our measure for cognitive cohesion is adapted from FCS scale for cognitive cohesion ($\alpha = 0.894$). It is an eight-item measure using a 5-point Likert-type response format ranging from 'strongly disagree' (1) to 'strongly agree' (5). We maintained three reverse-coded questions to ensure respondents were paying attention and engaged in the survey. Representative questions for our cognitive cohesion measure include: "Our attitudes and beliefs are pretty similar" and "We have shared interests and tastes."

Emotional cohesion is "the quality of interpersonal relations" (Pescosolido & Saavedra, 2012). We adapted the FCS scale for emotional cohesion ($\alpha = 0.894$) which is also an eight-item measure and uses a 5-point Likert-type response format ranging from 'strongly disagree' (1) to 'strongly agree' (5). We maintained two reverse-coded questions. Representative questions for our emotional cohesion measure include: "Team members make each other feel secure" and "The emotional bond between us all is very strong."

Flexibility

Flexibility is the second major factor in family system theory (W. R. Beavers & Voeller, 1983; Olson & Gorall, 2003). Flexibility or adaptability is also an important component of work team performance (Burke et al., 2006; Mathieu et al., 2008) and viability (Beal et al., 2003; Sundstrom et al., 1990) We adapted the FCS adaptability scale (Björnberg & Nicholson, 2007) to measure individual perceptions of team flexibility ($\alpha = 0.894$). This is also an eight-item measure made and uses a 5-point Likert-type response format ('strongly disagree' (1) to 'strongly agree' (5)). We maintained two reverse-coded questions. Representative questions for

our flexibility measure include: “We are flexible and adaptable in how we deal with difficulties” and “We know we have the power to solve major problems.”

Shared vision & Compassion

Shared vision and compassion were measured using subscales from the Positive/Negative Emotional Attractor (P/NEA) Scale developed by Boyatzis & Oliver in 2008. The P/NEA scale has been used in a number of doctoral dissertations at Case Western Reserve University (Mahon, 2010; Miller, 2014a; Neff, 2011). It was developed to evaluate the quality of interpersonal relationships based on a common purpose, trust and caring, and the degree to which an individual sees the world a positive way. The P/NEA scale uses a five-point Likert scale ranging from ‘strongly disagree’ to ‘strongly agree

Shared vision is a common desired future state among a group of individuals; the individuals have hope that it can be achieved and share enough identity to relate to it (Boyatzis & Soler, 2012; Boyatzis, 2006). According to Mathieu, et. al. (2000) individual team members with and overarching shared vision are better able to coordinate their actions and reduce process loss than those lacking a shared vision. The shared vision scale uses an eight-item measure (α = 0.92 (Miller, 2014b), α = 0.91 (Neff, 2011)) from the P/NEA scale. Representative questions for our shared vision measure include: “Management emphasizes a vision for the future” and “Management emphasizes our current strengths.”

Boyatzis, Smith, & Blaize (2006, p. 13) define compassion in terms of empathy, caring (for the other person); and a “willingness to act in response to the person’s feelings.” We measured compassion using an eight-item subscale (α = 0.91 (Miller, 2014a), α = 0.85 (Neff, 2011)) from the P/NEA scale (Boyatzis & Oliver, 2008). The compassion measure included three reverse-coded questions and used a five-point Likert scale ranging from ‘strongly disagree’

to ‘strongly agree’. Representative questions for our shared vision measure include: “I care about my colleagues at work” and “I feel trusted by my colleagues.”

Individual engagement

Engagement is an individual's physical, mental, and emotional attachment to their work role; conversely, disengagement is the withdrawal from one's work role (Kahn, 1990). Schaufeli, et. al. (2002) describe engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption."

Engagement was assessed using the nine question Utrecht Work Engagement Survey (UWES). The UWES was originally developed by Schaufeli, et. al. in 2002 to measure engagement in terms of vigor, dedication, and absorption using a 17-item scale and a 7-point Likert scale. We utilized the nine question version of the UWES refined by Schaufeli, Bakker, and Salanova (2006) and modified it to a five-point scale in order to remain consistent with the rest of our survey. Measures of reliability for this scale are good ranging from $\alpha = 0.85$ to $\alpha = 0.93$ (Schaufeli et al., 2002; Sonnentag, 2003). Representative questions include, “My job inspires me” and “I am immersed in my work.”

Analysis of the Data

Our dataset consisted of 568 responses to an 85-item survey of working professionals involved in various phases (R&D, procurement, and sustainment) of the defense acquisition system at an Army life cycle command. All questions with the exception of a peer nomination were on a 5-point Likert-type scale. We removed 154 survey responses due to missing data where we could not reasonably impute values. These records were missing responses to our peer nomination questions or more than 5% of all questions. Nearly all of these were also missing demographic data. Indeed, most of our deleted records appeared to be cases where the

respondents began the survey, left, and never came back. Of the remaining responses, 23 were missing data only from the social desirability scale intended for use as a control variable. Values for these questions were imputed using the mode response for the question. All of the remaining responses used contained variation within each response set. All of these responses also included input for our three peer nomination questions and reverse-coded questions were answered appropriately indicating our survey takers were engaged throughout. Our final set consisted of 412 records to complete our analysis (n=412) which is an adequate population to conduct our analysis (Kline, 2011).

Sample

The study focused on individuals on army teams involved in all stages of the defense acquisition life cycle. These include: research, development, and engineering; acquisition; and sustainment. All participants are all familiar with the military terminology and acronyms used in the profession. The data collection was conducted via electronic survey from October 2014 through February 2015. The survey took no longer than 15 minutes to complete.

Of the 412 survey responses used, 42% were from an RDE organization, 24% from an acquisition organization, and 34% from a sustainment organization. Sixty-three percent of our respondents are over age 45 and most, across all age ranges, fall into mid-level pay grades (see table below).

	Percent of responses used in analysis
Organization type	
Acquisition	25%
Research, Development, and Engineering (RDE)	27%
Sustainment	48%

Age range	

20 to 24	1%
25 to 34	14%
35 to 44	20%
45 to 54	33%
55 to 64	28%
65 or over	5%

Grade	
Intern	1%
GS below 8	3%
GS-8/9	1%
GS-10/11	11%
GS-12/13	58%
GS-14/15	17%
GS-15+	4%
Contractor	3%

About 2/3 of our respondents were male and 1/3 female. This skew is consistent with the overall demographics of those involved in defense acquisitions in which about 70% of the workforce is male (Defense Acquisition University, 2012). The percentage of respondents certified in their career fields at the highest level (i.e. level III) is well above the defense acquisition average indicating our survey takers have completed more training than the average defense acquisition professional in their given field. Additionally, while the number of active duty military working in the Defense Acquisition System is relatively small, our survey was overwhelmingly dominated by civilian employees. In fact, only two respondents reported themselves as active duty military.

	Survey respondents (n=412)	**Overall Acquisition Workforce Data**
Gender[1]		
Male	68%	71%
Female	32%	29%

Certification in Career Field[2]		
Level I or higher	85%[3]	72%

Level II or higher	82%[3]	60%
Level III or higher	63%[3]	36%

Type of employment[2]		
Civilian workforce	96.4%	89%
Active military	0.5%	11%
Contractor/Other	3.2%	*Not reported*

[1] Overall workforce data source (Chief Financial Officer, 2013)
[2] Overall workforce data source (Carter, 2010)
[3] Of those survey respondents whose position requires certification; about 14% of the total (n=412) reported "n.a."

Most of our survey respondents have been employed by the government and involved in defense acquisitions for less than 10 years or more than 25 years. Indicating a U-shaped curve for tenure. This lull is well-known to defense acquisition human resource personnel and is generally attributed to a hiring freeze in the 1990's. The difference between years employed by the government and years involved in defense acquisitions is attributable to people transfer into acquisitions from another job field or having worked in acquisitions as a contractor before coming to work directly for the government as a civilian.

Years	**Employed by the government**	**Involved in Defense Acquisitions**
1-5	22%	28%
6-10	23%	26%
11-15	13%	16%
16-20	5%	5%
21-25	7%	6%
25-30	10%	6%
30+	20%	14%

Not only have many of our survey respondents been involved in defense acquisitions for many years, but many of them have limited professional exposure outside this area. Over 40% of our respondents have had either no or only one full-time job other than working with Defense Acquisitions.

Number of other full-time jobs other than involved with defense acquisitions	Percent of respondents providing demographic data (n=371)
0	24%
1	19%
2	20%
3	14%
4	6%
5+	17%

RESULTS

Exploratory Factor Analysis

We conducted an exploratory factor analysis on our data using Statistical Package for Social Sciences (SPSS) Version 22 in order to understand better the number and type of latent constructs described by the survey responses. We used principal axis factoring with Promax rotation to explore possible factor structures (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Matsunaga, 2010) allowing factors to rotate freely with eigenvalues >1 and suppressing items loading with an absolute value less than .3 to reduce clutter and make our pattern matrix more readable (Costello & Osborne, 2005). Our data showed good adequacy for conducting an EFA with a Kaiser-Meyer-Olkin Measure of Sampling Adequacy of .954 (Kaiser & Rice, 1974) and a significant p-value for Bartlett's Test of Sphericity indicating that our data correlation matrix is significantly different from an identity matrix. We examined the communalities of our items and found six items with low extractions (<.4). We removed them from our data set as items with low extraction values tend to cause problems in factor analysis (Fabrigar et al., 1999).

Our initial EFA revealed cross-loading of a number of items across our factors. This was expected given the similarity of these constructs and types questions in our survey instrument. We removed the items from the sub-scale causing the most problems, *overall positive mood*

leaving us with the *shared vision* and *shared compassion* subscales for relationship quality which are more relevant to our theory and hypotheses. Items from our scales intended to measure *motivation* caused considerable problems throughout our EFA. The subscales in the Motivation at Work Scale (MAWS) (Gagne et al., 2010) cross-loaded with our *engagement* items, especially those from the *intrinsic* and *identified* subscales. This makes sense given the relatedness of the scales and the type of questions used to assess the hypothesized construct. We experimented by removing cross-loading items from the motivation scales that most closely resemble concepts related to work engagement, the remaining factors showed good discriminant validity but we found Heywood cases in our factor correlations with items from the *extrinsic motivation* and *introjected* subscales. These items can cause problems in later analysis as they are cases where the amount of variance explained is greater than 100% (Fabrigar et al., 1999). Additionally, during our test for reliability the two remaining items forming our latent construct for *social desirability*[7] failed meet the generally accepted Cronbach Alpha reliability threshold of .7 indicating poor reliability (Nunnaly, 1978). We removed our *motivation* and *social desirability* items.

We reexamined the factor loadings and cross-loadings of items to determine discriminant and convergent validity. According to Brown (2006, p. 31), "widely accepted guidelines do not exist" for retaining items based on their loadings. For our analysis, we retained items with loadings >.6 (Costello & Osborne, 2005). Low-loading is relative and defined as less than half of the primary loading on a given construct; (Hinkin, 1998). None of the items we retained showed any cross-loading and our reliability was excellent with Cronbach Alpha values for each of our factors over 0.7 which is the accepted threshold for good reliability (Nunnaly, 1978).

[7] The *social desirability* latent construct was intended as a control variable.

The number of non-redundant residuals representing the difference between original and reproduced correlation coefficients >0.05 was 1% which suggests that our factor structure matches our data very well. More than about 5% generally is understood to indicate another factor should be included. The scree test of the percentage of variance explained (Cattell, 1966) loaded well into the six-factor model explaining 65.4% of the total variance.

All of our theoretical factors are reflective, meaning that the latent constructs or factors explain the items observed, our survey responses (Jarvis, Mackenzie, & Podsakoff, 2003). Because of this, we experimented with our EFA by imposing a factor constraint on our data. We constrained the model to four factors which would be the number of remaining higher-order factors in our model (e.g. *relationship quality* formed from the sub-scales for *shared vision & compassion* and *cohesion* formed from *cognitive* and *emotional cohesion*). The resulting model caused significant problems with new cross-loading issues between multiple factors, reduced amount of total variance explained (<60%), and an unacceptably high percent (15%) of non-redundant residuals with absolute values greater than 0.05. We removed the factor constraint, again allowing our model to rotate freely on eigenvalues greater than 1 (Hinkin, 1998). After this experimentation, we believe the constructs in our theoretical model remain valid, but our analysis will individually assess each sub-scale for *relationship quality* and *cohesion.*

Confirmatory Factor Analysis

After completing our EFA, we conducted a confirmatory factor analysis using AMOS (Analysis of Moment Structures) software v22.0 and maximum likelihood estimation. The psychometric properties of our 6 latent constructs involving 34 items were evaluated simultaneously in the analysis. To improve model fit we covered the error terms for some items within the same construct where the survey questions were ambiguous enough to allow for such

covariance[8]. According to Kenny (2012), "variance not explained by theoretical constructs may covary across two measures." All of our factors loaded well into the theorized constructs representing good face validity. Our final CFA showed good discriminant validity with all covariance values for our latent constructs below 0.85. Convergent validity of our constructs was good with all of the loadings on the latent constructs well above the accepted threshold of 0.4, and average of items loadings per latent construct above 0.7 (Hair, Black, Babin, & Anderson, 2012). The sample size of 412 was deemed sufficient given the high factor loading of our items on our constructs and the number of items per construct, i.e. >3, (MacCallum, Widaman, Zhang, & Hong, 1999).

Based on accepted standards for model fit (Hu & Bentler, 1999; Matsunaga, 2010) our CFA model is acceptable: $X^2 = 1000.441$, df = 509, $p < 0.001$, $X^2/df = 1.966$, CFI = 0.953, RMSEA = 0.048, $P_{close} = 0.711$ SRMR = 0.044.

Model	Statistical Fit				Relative Fit	Absolute Fit		
	X^2	df	P >.05 rejects independent model	CMIN/df 1-3 is good	CFI ≥0.95 (1 if X^2<df)	SRMR <.08	RMSEA <0.05 (0 if X^2<df)	P_{close} >0.05 l
CFA model with covaried error terms	1000.441	509	0.000	1.966	0.953	0.044	0.048	0.711

Figure 2: CFA Model Fit

We grouped our data sample into two groups based on the number of full time jobs they've held outside defense acquisitions. We did this because our theories include an element of institutionalization that might be more profound in people with relatively fewer outside

[8] See the appendix for items with covaried error terms and comparison of model fit before and after the covariance.

experiences against which to compare organizational norms. Our *low* group consisted of people who've held either one or zero other jobs (43%). The *high* group consisted of people who have held two or more other jobs not involved with defense acquisitions (57%). We tested our model for invariance across both groups to ensure that our factors load similarly and we have good model fit for all of groups in our study. If we do not have invariance, our model would essentially be measuring different psychometric properties for each group and our data would be less meaningful.

By examining our model fit when both job groups are tested together (with no cross-group path constraints) we find model good configural model fit after removing some items with large regression weight differences between groups. We also conducted a chi-square difference test between our unconstrained model and a model with fully-constrained regressions weights and found good model fit and non-significant differences between groups indicating metric invariance between our groups. The data *means* the same thing to people when grouped by the number of other jobs they've held. In our case, only two items had significant differences between groups (see appendix). According to McKenzie & Podsakoff, (2003), even if only one item per construct has differences that are not significant in the invariance test, partial metric invariance is achieved which is acceptable.

Model Reliability and validity. Cronbach alpha values for the model constructs are all >.7 (see EFA table) indicating good composite reliability (Fornell & Larcker, 1981). This means the items in each construct vary consistently with one another. The composite reliability, CR, for each factor is also well above 0.7 a further indication of good reliability. The square root of the average variance extracted, AVE, for all constructs is >0.5 and greater than the maximum shared variance, MSV, and average shared variance, ASV. AVE is also greater than the values of the

square correlations of related items (the values in the columns and rows associated with the AVE, see below) all of which indicate good convergent and discriminant validity, respectively (Kline, 2011) (see table below). Based on these values, the CFA validated the factor structure identified during the EFA.

	CR	AVE	MSV	ASV
Flex	0.904	0.655	0.539	0.436
SharedVision	0.921	0.625	0.393	0.344
ECohes	0.925	0.674	0.539	0.410
CCohes	0.901	0.604	0.527	0.421
Engmt	0.908	0.665	0.343	0.273
Comp	0.885	0.608	0.510	0.430

Figure 3: Model validity and reliability

	Flex	SharedVis	ECohes	CCohes	Engmt	Comp
Flex	0.809					
SharedVision	0.598	0.791				
ECohes	0.734	0.554	0.821			
CCohes	0.726	0.563	0.713	0.777		
Engmt	0.513	0.586	0.480	0.491	0.815	
Comp	0.701	0.627	0.683	0.714	0.537	0.780

Figure 4: Factor Correlation Table (sqrt AVE on diagonal)

Common method bias is variance between constructs that is artificially inflated or deflated as a result of collecting data from a single source or in a single manner (Podsakoff et al., 2003). There is debate in the literature as to the scope and impact of method bias especially as its assumed presences and impact have been unevenly applied to monomethod studies (Spector, 2006). We examined our data for method bias per convention because it was collected in a single self-report survey instrument. We examined our data in SPSS constraining the number factors extracted to one with no rotation; while the total variance explained by the single factor was quite high (*Shared Vision* 43.6%), it was below the generally accepted threshold of 50% and provides an initial suggestion that no common method bias was involved (Podsakoff et al.,

2003). We also tested our model in AMOS for common method bias using a common latent factor (CLF). Cases where the difference between the model with the CLF and without the CLF are >.2 indicate that a relatively large amount of variance is accounted for by some variable not in our model (Aguinis, Beaty, Boik, & Pierce, 2005). When comparing the standardized estimates of our non-CLF and CLF models, we found a number of cases where this method of testing suggests that common method bias may be present. In light of this we will consider bias-related issues such as social desirability, negative affect, and acquiescence (Spector, 2006) in the analysis of final model. To test for multicollinearity, we examined the variance inflation factor (VIF) for each of the independent variables. Values less than 3 indicate that the items are not collinear; values between 3 and 5 indicate possible collinearity; and values greater than 5 are very likely collinear with those greater than 10 definitely collinear, but may still be relevant depending on the context of the study and hypotheses proposed (O'brien, 2007). We analyzed composite variables generated after our CFA to assess the whole of the constructs in which we are interested. Our analysis shows that all of our independent variables (*emotional cohesion*, *cognitive cohesion*, and *flexibility*) are independent with no multicollinearity issues.

Development and test of structural model

We used structural equation modeling to examine our hypothetical model because SEM is particularly suited to evaluating causal models and testing mediation (Iacobucci, Saldanha, & Deng, 2007). Structural equation modeling helps us test hypotheses and confirm relationships between covaried latent constructs (Judge, Hurst, & Simon, 2009).

We used AMOS version 22 to evaluate our model and found support for two of our six mediation hypotheses. We also identified an unpredicted, albeit very weak, indirect effect when

emotional cohesion is mediated by compassion. An indirect effect occurs when no significant direct relationship exists, but when a mediator is introduced, the indirect effect becomes significant. That all of the model variances explained by direct effects are substantially reduced and become non-significant in the presence of our mediators suggests our mediating factor(s) explain a much greater portion of our model variance on their own without our independent variables.

Hyp	Path	Standardized direct effect w/o mediator	Standardized direct effect w/ mediator	Standardized indirect effect	Type of mediation	Hypothesis conclusion
H3a	C_Coh -> Shared Vision -> Engagement	0.193*	0.070*	0.038(0 278)NS	None	Not supported
H3b	E_Coh -> Shared Vision -> Engagement	0.150(0 058)NS	0.056(0.454)NS	0.037(0 276)NS	None	Not supported
H4a	C_Coh -> Compassion -> Engagement	0.193*	0.071(0.368)NS	0.047(0 060)NS	None	Not supported
H4b	E_Coh -> Compassion -> Engagement	0.150(0 058)NS	0.058(0.446)NS	0 030*	Indirect effect	Not supported
H5a	Flex -> Shared Vision -> Engagement	0 263***	0.109(0.174)NS	0.088**	Full mediation	Supported
H5b	Flex -> Compassion -> Engagement	0 263***	0.115(0.152)NS	0 033*	Full mediation	Supported

Figure 5: Tests for mediation hypotheses

We covaried the error terms for our mediating variables which gave us good model fit (see below). We can justify this covaried relationship because both of these constructs are, in fact, subscales in a larger 'relationship quality' scale and therefore likely to be related. Because of this logical and expected relationship we feel confident in this approach (Kenny, 2012).

Statistical Fit				Relative Fit	Absolute Fit		
CMIN (X^2)	**df**	**p-value** (>.05 reject indep model)	**CMIN/df** (1-3 is good)	**CFI** ≥0.95 (1 if X^2<df)	**SRMR** (<.08)	**RMSEA** <0.05 (0 if X^2<df)	**P_{close}** >0.05
1000.441	509	0.000	1.966	0.953	0.0436	0.048	0.771

Figure 6: SEM Model fit

We tested for interaction effects in our structural model using variables calculated in SPSS. We iterated running the model and trimming non-significant pathways one at a time beginning with our interaction effects. We found no significant interaction effects amongst *cognitive cohesion*, *emotional cohesion*, and *flexibility*.

We tested our multi-group moderation hypotheses in our revised conceptual model looking at the number of jobs individuals have held other than with defense acquisitions. We

looked at those having zero or one other professional job as our "low" group (n=177) and those with two or more other jobs as our "high" group (n=235) comparing the mean scores of these groups. We found support for one of our three multi-group moderation hypotheses.

Multi-group moderation hypothesis		Hypothesis conclusion
H6	The number of previous professional jobs moderates the effect of cognitive cohesion on engagement	Not supported
H7a	The number of previous professional jobs moderates the effect of flexibility on shared vision.	Not supported
H7b	The number of previous professional jobs moderates the effect of flexibility on compassion.	Supported

Figure 7: Tests for multi-group moderation hypotheses

The number of previous professional jobs held moderates the effect of flexibility on compassion. All of the other relationships between variables in our model had non-significant z-scores. For participants in our sample, having had a higher number of other jobs positively moderates the effects of *flexibility* on *compassion* (High Jobs std β = 0.426; Low Jobs std β = 0.168; z-score = -1.952; $p<0.1$). In other words, people with the external experience of having had more other jobs can relate to, or have compassion for, others under conditions of change.

Because our revised model has no direct significant relationships between *emotional cohesion* and *cognitive cohesion* with *shared vision*, we recreated our model with these relationships to experiment with and examine group differences in the relationships between these factors (Baron & Kenny, 1986). We found no group moderation effect of either *cognitive cohesion* (High Jobs std β = 0.337; Low Jobs std β = 0.068; z-score = -1.629; p=ns) or *emotional cohesion* (High Jobs std beta = 0.127; Low Jobs std beta = 0.302; z-score = 0.969; p=ns) on *shared vision*. There were no other significant differences in our groups.

Based on the outcomes of our hypotheses testing, our findings are shown in the figure below:

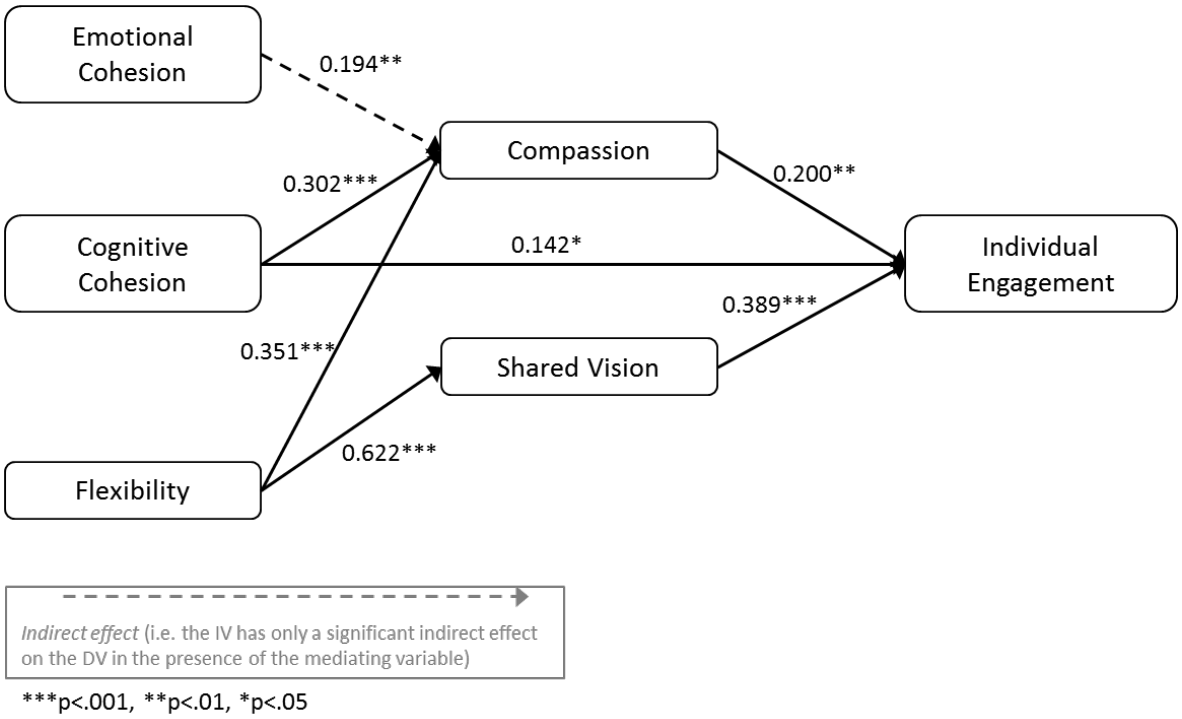

Figure 8: Final Structural Equation Model

DISCUSSION

One of the most interesting takeaways from our analysis is relationship between an individual's flexibility and their perception of the team's shared vision. As hypothesized, the effect of an individual's perceived level of *flexibility* on their *engagement* is fully mediated by their perception of the team's *shared vision*. The individual's perception of their team's *shared vision* dominates the amount of variance explained by our model in our factor analysis[9] and a highly significant effect ($\beta = 0.39$; $p<0.001$) in our final model. This underscores the importance of creating a general understanding of the team's ultimate objective among team members. An individual's assessment of their team's vision and the degree to which they believe others share the same vision are cognitive goals communicated and understood using rationality and logic. When working in a healthy team environment, people share a vision for an objective, believe

[9] Shared Vision explains over 43% of the variance in our model.

others share a similar vision and become engaged in their work creatively solving problems and working with their teammates to realize the vision. Individual flexibility strongly impacts shared vision indicating that the more flexible an individual, the more likely they are to have the capacity to get behind a leader's vision and actively reconcile discrepancies with their teammates creating consensus around the best to accomplish the next task in line required to realize the vision. This suggests that the practical implication for this finding in defense acquisitions is to encourage, or allow, team members to openly discuss the leader's desired end state. All too often day-to-day activities are consumed by emergencies and responding the most urgent, but not necessarily important, task that must be accomplished. Time to reflect and socialize on the important objective and develop a shared vision for the team is important in order for individuals to reconcile their interpretations with their counterparts' interpretations and be fully engaged in their team's responsibilities. Under the existing paradigm, which equates the individual to a cog in a vast industrial machine and presumes system failures to be a function of professional acumen or familiarity with the prescribed process, time to reflect and discuss the professional merits of a leader's vision and team's purpose are rarely allowed. When they are allowed the shared vision itself is an objective.

Leaders who set a challenging vision for their subordinates and provide them the tools to accomplish it are transformational leaders (Bass, 1990). In military parlance, this type of leadership is often referred to as *mission-oriented* leadership where the leader describes the mission, the final result desired, the reason for performing the mission, and finally 'empowers' their subordinates to accomplish the mission. A strong, emotionally-intelligent vision enables flexible individuals to roll with the unexpected day-to-day punches and fire-drills that can frustrate the best laid and most detailed plans but a rigid vision incapable of adjusting to

environmental factors may have the counterproductive effect of disengaging team members. Defining a shared vision supports current army leadership philosophy programs, but underscores the need for well-managed execution. Defining a specific objective can activate the brain's task positive network (TPN) which tends to focus on tasks at the cost of personal relationships and positive affect. The TPN "is thought to be important for problem solving, focusing of attention, making decisions, and control of action" (Boyatzis, Rochford, & Jack, 2014, p. 1) which can be useful in achieving objectives but limits openness to new ideas and creativity.

In family systems *flexibility* involves members' capability to adjust to role, circumstance, and leadership changes (Hampson et al., 1991). This suggests that the perceived trust and sense of caring one receives from, and has for, one's family members changes the way his or her *flexibility* influences their healthy level of engagement with the family. Exporting this concept to defense acquisitions using our metaphor of family, is informative when we consider the team context in which individuals work on a day-to-day basis over a long period of time.

While *shared vision* can be thought of in terms of an individual's investment in his or her team's outcome, *compassion* is an investment in their teammates' well-being and the perceived level of their teammates' investment in them. To have compassion is to care and to trust others. *Shared vision* and *cognitive cohesion* are cognitive constructs that appeal to an individual's value system and rational judgement. *Compassion* and *emotional cohesion* are affective constructs; they involve empathy, caring, and interpersonal relations. *Compassion* amplifies the effect of *emotional cohesion* on individual *engagement* through an indirect effect. In this case *emotional cohesion* has no significant effect on *engagement* unless it is mediated by *compassion*. This makes sense given the way our survey items were written. We used survey instruments originally designed to measure cohesion in family business (see: Björnberg & Nicholson, 2007)

and modified only slightly for our study. Questions asked participants about their feelings of closeness, warmth, and even love for their fellow team members. These are not typical workplace questions. Interestingly, when filtered through our mediating variable, *compassion* (which describes items in terms more familiar to our survey participants such as 'trust' and 'caring'), the effect, albeit weak, reveals itself. People who are cognitively cohesive share similar values and worldviews. As mentioned throughout this paper, Army acquisitions and defense acquisitions are implemented in team environments throughout the product life cycle. This suggests that, while having similar worldviews and shared understandings of mission objectives are important, caring about, having empathy for, and being able to relate emotionally with one's teammates in the execution of one's day-to-day tasks are beneficial. When people care and believe their teammates care about them, they are engaged. This finding is informative for our problem of practice because it has for so long gone under-appreciated. That an individual's assessment of their team's *cohesion* influences individual engagement underscores the importance not only of teambuilding in general, but the importance of creating teams of individuals capable of relating to one another both emotionally and intellectually to maximize their engagement.

The fully mediated effect of an individual's flexibility on their work engagement suggests that while people may be able to adapt to the visions espoused by leaders, or actively participate in the social process to create a vision of the desired future, they may then become rigid in their adherence to that vision. This can limit openness to new ideas or suggestions. In family systems this presents itself as the desire to maintain the status quo. As Olson & Gorall (2003) point out, for families, healthy functioning involves balancing stability and change. Wolin & Bennett (1984) likewise identified the importance of tradition and ritual in family systems, but in order to

remain healthy, flexibility must be allowed as the social dynamics adapt to new structures, roles, and context. If individuals in work teams have the flexibility to adjust to a leader's vision and be engaged in their work as our research suggests, the critical role of the leader for individual member engagement becomes underscored. Leaders in work teams, as well as family leaders, must be willing to adjust the shared vision that has been created to meet current environmental realities. In other words, a shared vision that optimizes employee engagement is not some static thing created once then incrementally attained; it is a dynamic future state jointly created with team member input. When team members recognize disconnects between the shared vision they had historically supported and the external realities their team now face, they disengage. In acquisition research, the recommendations associated with attempting to control structural variables such as locking down changing requirements, eliminating uncertain budgets, and re-organizing offices and programs to align to the latest management trends have neglected the reality defense acquisition professional's face on a day-to-day basis. These people are flexible, they can adjust to changing environmental realities, but quickly sense when those realities no longer match their team's purpose. They care about why they are asked to do the tasks they are asked to perform and care about the people with whom they are committed to performing those tasks. If army or defense acquisition program are realistically expected to improve, leaders must acknowledge the failures of attempting to overlay big business commercial best practices and accept the realities of federal system with its accompanying uncertainty and constraints. Family systems may provide an alternative framework for working within these boundaries. Optimizing team cohesion and flexibility may improve individual engagement leading to improved performance and better ability to deal with uncertainty and imposed constraints. Instead of fighting the same losing battle for 60 years by attempting to control and uncontrollable

system, small changes to leader training and individual assignments may prove to be the missing link in defense acquisition system improvement.

CONCLUSION

We can leverage family systems theory to add richness to our understanding of the complex system that is Defense Acquisitions. Instead of considering only technical skills and experience levels, we can consider individual levels of cohesion and flexibility to improve work engagement. With this understanding family systems theory can be leveraged to categorize teams along a flexibility continuum: rigid, structured, flexible, or chaotic and a cohesion continuum: disengaged, separated, connected, and enmeshed. Instead of blindly following industrial revolution-era organizational concepts and unquestioned assumptions of commercial best practices, we can reference the lessons of family systems theory (W. R. Beavers & Hampson, 2003; Olson & Gorall, 2003) and family business (Björnberg & Nicholson, 2007; Labaki, Michael-Tsabari, & Zachary, 2013) to create teams or design leader and team member training and coaching for optimal levels of these two critical elements depending on program requirements or life cycle stage.

Human beings use metaphors to understand complex topics or issues; metaphors allow us to create mental models of unfamiliar situations through familiar phrases, relationships, and tasks (Gibson & Zellmer-bruhn, 2001). When we do this, the metaphors also serve as a "source of cognitive priming [that] brings forth semantic, behavioral, and affective responses… characteristic of the source domain"(Gibson & Zellmer-bruhn, 2001, p. 276). We therefore must be cognizant of the metaphors we use in describing our teams and work environment. Sports and military metaphors have been shown to elicit a sense of limited, mission-oriented objectives

where family metaphors generally imply broad, cross-functional objectives, teamwork, nurturing and support (Gibson & Zellmer-bruhn, 2001) all of which result in improved individual health, engagement, and performance (Ryan & Deci, 2000; Sonnentag, 2003).

IMPLICATIONS FOR PRACTICE

The results of this study support a new typology for defense acquisition teams whereby acquisition teams may be classified in a manner similar to family systems according to their levels of cohesion and flexibility. Teams fall along a cohesion continuum based on their level of cohesion ranging from low (disengaged) to high (enmeshed) with moderate levels in the middle (separated and connected). Likewise, the flexibility continuum ranges from low (rigid) to high (chaotic) with moderate middle levels (structured and flexible). See Olson & Gorall (2003) for a graphic depiction of the resulting matrix. Over the course of their life cycle, acquisition programs experience ups and downs and myriad changes both externally initiated through changing requirements and budget uncertainty and through internal disruptions such as leadership changes. Early in a program's life cycle when requirements are being defined and the art of the possible (and practical) is being developed, teams with low-to moderate cohesion may be more effective as the tendency to engage in groupthink is reduced. Frequently, programs that fail to meet an established congressional or other milestone enter emergency-mode with drastic program modifications initiated to save it; these times may be more appropriate for high-flexibility teams. Alternately as surviving programs age and enter the sustainment phase of their life cycle, tasks may become more routinized which may be advantageous to high-cohesion teams.

This study informs the direction of leadership training & coaching, how teams are built & evaluated, and sheds new light on aspects of the Defense Acquisition system previously ignored. Families offer individuals physical and emotional security whereas organizations and teams offer security in an uncertain employment environment or status and a sense of identity. Like a family, organizations with which employees connect on an emotional level feed the individual sense of identity. Our study paves the way for future boundary-spanning research involving experiments with teams with varying degrees of cohesion, flexibility, and relationship quality. Additionally, our research points out the need for future development of training and coaching agendas focused on improving an individual's flexibility and their team's cohesion. This new lens liberates leaders and change agents from the traditional slavish devotion to commercial best practices allowing them to explore alternative organizational designs and interpersonal and team relationships.

LIMITATIONS AND FUTURE RESEARCH

Our study assessed army acquisitions. While legally compelled to work within the same federal framework (e.g. DOD Instruction 5000.01 and 5000.02) and subject to similar Congressional restrictions, other departments (i.e. Air Force and Navy) and even other Army commands may have different locally-established standing operating procedures (SOPs) and different interpretations of federal regulation. We believe our service-agnostic evaluation accommodates this variation, but because we evaluated a single Army life cycle management command, differences in culture resulting from identity associated with other services or the normative application of nuanced processes may limit the generalizability of our findings.

We found evidence in our earlier qualitative study for the influence of intergenerational authority and role relationships in shaping team dynamics in defense acquisitions. We chose not to include it in this study over concern for the length of our survey instrument and its impact on response rates. With an analysis of cohesion and flexibility now completed, we suggest future research continue developing the family metaphor and evaluate the impact of intergenerational authority and named roles on individual engagement and team performance.

The link between individual engagement, job satisfaction, and work performance is well-established, but the sequence is often debated. While difficult to objectively measure in defense acquisitions (where programs of record can last for decades) future research should seek to objectively evaluate team performance based on cohesion, flexibility, compassion, and shared vision. These studies should clearly define "performance" as a behaviour vice the short-term outcome-oriented performance standards traditionally measured such as 'obligation rates'[10]. We would like to have examined the moderating effect of *motivation* on the relationships between *cohesion*, *flexibility*, and *engagement*. We were unable to do this in our study because the scales selected, even after surviving a q-sort analysis and pre-testing, failed to load properly in our exploratory factor analysis. Future research examining motivation should take this into consideration, perhaps focusing on a particular subscale along the motivation continuum (e.g. *extrinsic motivation*) with a greater number of survey items or using multiple methods to collect data.

[10] Obligation rates in the federal government are essentially a measure of how quickly a program can spend money over the course of the fiscal year.

Edward Straub

APPENDIX A (EFA Pattern Matrix)

Pattern Matrix[a]

	Factor					
	Shared Vision	Emotional Cohesion	Cognitive Cohesion	Engagmt	Compsn	Flexibility
Cronbach Alpha	**0.921**	**0.925**	**0.899**	**0.906**	**0.886**	**0.9**
Variance explained	43.6%	7.4%	4.7%	4.0%	2.9%	2.9%
RQ_V7	.891					
RQ_V8	.874					
RQ_V1	.859					
RQ_V4	.754					
RQ_V5	.725					
RQ_V6	.711					
RQ_V3	.620					
ECoh4		.912				
ECoh6		.850				
ECoh8		.828				
ECoh2		.750				
ECoh5		.732				
ECoh3		.653				
CCoh4			.938			
CCoh6			.770			
CCoh1			.701			
CCoh3			.669			
CCoh7			.660			
CCoh8			.651			
Eng3				.926		
Eng4				.833		
Eng2				.784		
Eng5				.727		
Eng7				.710		
RQ_C4					.840	
RQ_C1					.818	
RQ_C6					.741	
RQ_C5					.706	
RQ_C2					.637	
Flex2						.886
Flex1						.855
Flex4						.776
Flex8						.679
Flex7						.673

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Figure 9: EFA Pattern Matrix

Edward Straub

APPENDIX B (Items with covaried error terms in CFA)

Construct	Item ID	Survey Question:
Relationship Quality (shared vision)	Error_RQ_V7	Please rank how strongly you agree or disagree with the statements below as they pertain to your current work team: Our purpose as an organization is clear in our vision or mission.
	Error_RQ_V6	Please rank how strongly you agree or disagree with the statements below as they pertain to your current work team: Our work is focused on our vision or mission.
Relationship Quality (compassion)	Error_RQ_C1	Please rank how strongly you agree or disagree with the statements below as they pertain to your current work team: I do not feel trusted by my colleagues. (R)
	Error_RQ_C2	Please rank how strongly you agree or disagree with the statements below as they pertain to your current work team: I feel trusted by my colleagues.
Relationship Quality (compassion)	Error_RQ_C4	Please rank how strongly you agree or disagree with the statements below as they pertain to your current work team: I do not trust my colleagues. (R)
	Error_RQ_C2	Please rank how strongly you agree or disagree with the statements below as they pertain to your current work team: I feel trusted by my colleagues.

APPENDIX C.1 (CFA configural invariance for number of jobs (*model fit*))

Model	Statistical Fit				Relative Fit [A]	Absolute Fit		
	X^2	df	P >.05 rejects independent model	CMIN/df 1-3 is good	CFI ≥0.95 (1 if X^2<df)	SRMR <.08	RMSEA <0.05 (0 if X^2<df)	P_{close} >0.05
6-factor model (all items)	1694.218	1018	0.000	1.664	0.94	0.059	0.040	1.000

[A] Although our measure falls just short of the currently accepted value (Hu & Bentler, 1999) for CFI of being greater than or equal to 0.95, our value of 0.94 comes very close and additional alterations to our model to improve group fit reduce fit for our model when the groups are recombined. Bentler's (1990) original recommended cut-off for acceptability was 0.90 for the CFI value. Because our model comes close and meets fit criteria for statistical and absolute fit, we maintain our current set of items and continue with our analysis. Similarly, our TLI (Tucker-Lewis Index), another measure of relative fit, for this data was 0.93. Data that best fits a model using this measure will have values >=0.95; however, values >=0.90 are acceptable (Matsunaga, 2010). We provide this information not to 'cherry-pick' our fit criteria, but to provide additional data to justify our acceptance of the 0.94 value in our CFI measure.

APPENDIX C.2 (CFA metric invariance between groups)

			JobsLow		JobsHigh		
			Estimate	P	Estimate	P	z-score
RQ_V7	<---	SharedVision	0.883	0.000	0.889	0.000	0.069
RQ_V8	<---	SharedVision	0.985	0.000	1.010	0.000	0.279
RQ_V1	<---	SharedVision	0.971	0.000	0.970	0.000	-0.003
RQ_V4	<---	SharedVision	0.961	0.000	0.834	0.000	-1.363
RQ_V5	<---	SharedVision	0.848	0.000	1.099	0.000	2.556**
RQ_V6	<---	SharedVision	0.832	0.000	0.746	0.000	-0.962
RQ_V3	<---	SharedVision	0.728	0.000	0.733	0.000	0.049
ECoh4	<---	ECohes	0.778	0.000	0.722	0.000	-0.650
ECoh6	<---	ECohes	0.947	0.000	0.843	0.000	-1.267
ECoh8	<---	ECohes	0.732	0.000	0.660	0.000	-0.854
ECoh2	<---	ECohes	0.840	0.000	0.844	0.000	0.048
ECoh5	<---	ECohes	0.951	0.000	0.905	0.000	-0.557
ECoh3	<---	ECohes	0.840	0.000	0.748	0.000	-1.213
CCoh4	<---	CCohes	0.811	0.000	0.811	0.000	-0.004
CCoh6	<---	CCohes	0.749	0.000	0.766	0.000	0.192
CCoh1	<---	CCohes	0.863	0.000	0.937	0.000	0.881
CCoh3	<---	CCohes	0.800	0.000	0.816	0.000	0.200
CCoh7	<---	CCohes	0.675	0.000	0.613	0.000	-0.660
CCoh8	<---	CCohes	0.740	0.000	0.702	0.000	-0.454
Eng3	<---	Engmt	1.038	0.000	1.152	0.000	1.210
Eng4	<---	Engmt	1.054	0.000	1.121	0.000	0.666
Eng2	<---	Engmt	0.879	0.000	0.981	0.000	1.005
Eng5	<---	Engmt	0.907	0.000	1.017	0.000	0.981
Eng7	<---	Engmt	0.750	0.000	0.849	0.000	1.015
RQ_C4	<---	Comp	0.828	0.000	0.831	0.000	0.036
RQ_C1	<---	Comp	0.773	0.000	0.757	0.000	-0.162
RQ_C6	<---	Comp	0.826	0.000	0.814	0.000	-0.147
RQ_C5	<---	Comp	0.665	0.000	0.517	0.000	-1.906*
RQ_C2	<---	Comp	0.872	0.000	0.797	0.000	-0.865
Adapt2	<---	Flex	0.877	0.000	0.920	0.000	0.526
Adapt1	<---	Flex	0.876	0.000	0.859	0.000	-0.213
Adapt4	<---	Flex	0.758	0.000	0.800	0.000	0.528
Adapt8	<---	Flex	0.845	0.000	0.784	0.000	-0.739
Adapt7	<---	Flex	0.745	0.000	0.791	0.000	0.457

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Edward Straub

APPENDIX D (Key Constructs Table)

Concept	Working Definition	Construct/ Dimension(s)	Definition(s) in the Literature	Operationalization/ Scale Properties
Cohesion	A bond between members of a group that holds the group together	Group / Cognitive cohesion (Kadushin, 2012; Pescosolido & Saavedra, 2012)	"situations characterized by low levels of emotional attachment coupled with high levels of shared worldviews" (Björnberg & Nicholson, 2007, p. 235).	**Cognitive cohesion** (Björnberg & Nicholson, 2007) Chronbach's alpha: α = 0.894 5-point Likert-type response format.
		Social / Emotional Cohesion (Beal et al., 2003; Olson, 2000; Pescosolido & Saavedra, 2012)	Emotional Bonding (Olson, 2000) "the quality of interpersonal relations" (Pescosolido & Saavedra, 2012, p. 748).	**Emotional cohesion** (Björnberg & Nicholson, 2007) Chronbach's alpha: α = 0.894 5-point Likert-type response format.
Flexibility	Ability to cope with the unexpected.		Balancing stability with change (Olson & Gorall, 2003). Including in-progress adjustments to previously established processes or norms (Bandura, 1989). An individual's ability to cope or adjust to role expectations which are perpetuated through culturally-established processes (Wolin & Bennett, 1984).	**Flexibility** (Björnberg & Nicholson, 2007) Chronbach's alpha: α = 0.859 5-point Likert-type response format.
Relationship Quality	General level of agreeableness of individuals toward one another within the group.	Shared Vision	Shared vision is a common desired future state exists among a group of individuals, the individuals have hope that it can be achieved, and share enough identity to relate to it (Boyatzis & Soler, 2012; Boyatzis, 2006).	P/NEA survey (three subscales) measured on a 5-point Likert-type scale
		Compassion	Boyatzis, Smith, & Blaize (Boyatzis et al., 2006, p. 13) define compassion in terms of three elements: "(1) empathy or understanding the feelings of others; (2) caring for the other person (e.g., affiliative arousal); and (3) willingness to act in response to the person's feelings."	

Edward Straub

Concept	Working Definition	Construct/ Dimension(s)	Definition(s) in the Literature	Operationalization/ Scale Properties
		Overall Positive Mood	Affect such as satisfaction, joy, and pride brought about as a result of realizing some intrinsic or extrinsic reward (Edwards & Rothbard, 2000)	
Autonomous Motivation	self-directed motivation based on either intrinsic interest or incorporating values, behaviours, and objectives into a sense of self. (Gagne et al., 2010).	Grouped the scales by autonomous (alpha = .79), and controlled motivation (alpha = .76). Note that Autonomous motivation is 'intrinsic' and 'identified' and Controlled motivation is 'introjected' and 'extrinsic' (Kyndt, Raes, Dochy, & Janssens, 2013).	"Autonomous motivation involves acting from a sense of volition and the experience of choice. The locus of causality (reason why one does something) is perceived to be internal. In contrast, controlled motivation involves acting with a sense of pressure, a sense of having to engage in the action. The locus of causality is perceived to be external." (Kyndt et al., 2013) [note: the Kyndt article does a great job concisely summarizing SDT and motivation theory & research.]	**Motivation At Work Scale** (MAWS) (Gagne et al., 2010) Chronbach's alpha (Intrinsic): $\alpha = 0.89$ Chronbach's alpha (Identified): $\alpha = 0.83$ Chronbach's alpha (Introjected): $\alpha = 0.75$ Chronbach's alpha (Extrinsic): $\alpha = 0.69$
Engagement	An individual's physical, mental, and emotional attachment to their work role (disengagment is the withdrawal from one's work role). (Kahn, 1990)	Vigor: "…energy and mental resilience… willingness to invest effort in one's work, and persistence even in the face of difficulties." Dedication: "…being strongly involved in one's work...." Absorption: "…being fully concentrated and happily engrossed in one's work…." (Schaufeli et al., 2002)	"Engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior." (Schaufeli et al., 2002) Work engagement "is related to good health and positive work affect… and is positively related to organizational commitment… and is expected to affect employee performance." (Sonnentag, 2003, p. 518)	Work & Well Being Survey / Utrecht Work Engagement Scale Cronbach's α between .85 and .93 (Schaufeli et al., 2002; Sonnentag, 2003)

Edward Straub

APPENDIX E (Survey Instrument)

Motivation (intrins / ident)

Please indicate to what degree each of he following statements corresponds to a reason you do your current job. I do this job because…

	Not at all (1)	A little (2)	Moderately (3)	Strongly (4)	Exac ly (5)
Because I enjoy this work very much (1)	❍	❍	❍	❍	❍
For he moments of pleasure hat his job brings me (6)	❍	❍	❍	❍	❍
Because I have fun doing my job. (2)	❍	❍	❍	❍	❍
I chose this job because it allows me to reach my life goals (3)	❍	❍	❍	❍	❍
Because this job fulfills my career plans (7)	❍	❍	❍	❍	❍
Because this job fits my personal values. (4)	❍	❍	❍	❍	❍

Motivation (ext / intro)

Please indicate to what degree each of he following statements corresponds to a reason you do your current job. I do this job because...

	Not at all (1)	A little (2)	Moderately (3)	Strongly (4)	Exac ly (5)
Because it allows me to make a lot of money. (1)	❍	❍	❍	❍	❍
Because my reputation depends on it. (2)	❍	❍	❍	❍	❍
Because I have to be the best in my job, I have to be a "winner." (3)	❍	❍	❍	❍	❍
Because this job affords me a certain standard of living. (4)	❍	❍	❍	❍	❍
Because my work is my life and I don't want to fail. (5)	❍	❍	❍	❍	❍
I do his job for the paycheck. (6)	❍	❍	❍	❍	❍

Engagement

Please rate how frequently the below statements describe you...

	Rarely (Once a month) (1)	Sometimes (A few imes a month) (2)	Often (Once a week) (3)	Very Often (A few imes a week) (4)	Always (Every day) (5)
At my work, I feel bursting wi h energy. (1)	❍	❍	❍	❍	❍
At my job, I feel strong and vigorous. (2)	❍	❍	❍	❍	❍
I am en husias ic about my job. (3)	❍	❍	❍	❍	❍
My job inspires me. (4)	❍	❍	❍	❍	❍
When I get up in the morning, I feel like going to work. (5)	❍	❍	❍	❍	❍
I feel happy when I am working intensely. (6)	❍	❍	❍	❍	❍
I am proud of the work that I do. (7)	❍	❍	❍	❍	❍
I am immersed in my work. (8)	❍	❍	❍	❍	❍
I get carried away when I'm working. (9)	❍	❍	❍	❍	❍

Edward Straub

Please answer the following questions based on how strongly you agree or disagree with he statement for your current work team. In this team...

			Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Cognitive Cohesion		We have similar views on hings. (1)	❍	❍	❍	❍	❍
		We have shared interests and tastes. (3)	❍	❍	❍	❍	❍
		We hink alike. (6)	❍	❍	❍	❍	❍
		Our attitudes and beliefs are pretty similar. (4)	❍	❍	❍	❍	❍
	R	We tend to have widely differing views on most social issues. (2)	❍	❍	❍	❍	❍
	R	We do not have much in common. (5)	❍	❍	❍	❍	❍
	R	We have radically different perspectives on hings. (7)	❍	❍	❍	❍	❍
		Our values are very similar. (8)	❍	❍	❍	❍	❍

Please answer the following questions based on how strongly you agree or disagree with he statement for your current work team. In this team...

			Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Emotional Cohesion	**R**	For many of us our strongest emo ional ties (as far as work is concerned) are outside the team. (1)	❍	❍	❍	❍	❍
		The emotional bond between us all is very strong. (2)	❍	❍	❍	❍	❍
		We usually feel happy to be with each other. (3)	❍	❍	❍	❍	❍
		We miss each o her when we're apart for a while. (4)	❍	❍	❍	❍	❍
		Team members make each other feel secure. (5)	❍	❍	❍	❍	❍
		Team members feel warm h for each other. (6)	❍	❍	❍	❍	❍
	R	We are not emo ionally close. (7)	❍	❍	❍	❍	❍
		We feel a lot of love for each o her. (8)	❍	❍	❍	❍	❍

Edward Straub

		Please rank how strongly you agree or disagree wi h the statements below as hey pertain to your current work team…					
Relationship Quality (Shared vision, compassion, overall positive mood)			Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
		Management emphasizes a vision for he future. (1)	❍	❍	❍	❍	❍
		We often discuss possibilities for he future. (2)	❍	❍	❍	❍	❍
		Our future as an organization will be better han our past. (3)	❍	❍	❍	❍	❍
		This is a great place to work. (4)	❍	❍	❍	❍	❍
	R	I do not feel trusted by my colleagues. (5)	❍	❍	❍	❍	❍
		I feel inspired by our vision and mission. (6)	❍	❍	❍	❍	❍
		We are encouraged by management to use and build on our strengths. (7)	❍	❍	❍	❍	❍
		I care about my colleagues at work. (9)	❍	❍	❍	❍	❍
		Our work is focused on our vision or mission. (10)	❍	❍	❍	❍	❍
		I feel trusted by my colleagues. (8)	❍	❍	❍	❍	❍
		Please rank how strongly you agree or disagree wi h the statements below as hey pertain to your current work team…					
			Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
		I enjoy working here. (11)	❍	❍	❍	❍	❍
		Working here is a joy. (13)	❍	❍	❍	❍	❍
	R	I do not trust my colleagues. (15)	❍	❍	❍	❍	❍
	R	If I had a choice, I would work somewhere else. (14)	❍	❍	❍	❍	❍
	R	I do not like working here. (12)	❍	❍	❍	❍	❍
	R	I do not care about my colleagues at work. (17)	❍	❍	❍	❍	❍
		Our purpose as an organiza ion is clear in our vision or mission. (18)	❍	❍	❍	❍	❍
		Management emphasizes our current strengths. (19)	❍	❍	❍	❍	❍
		Overall, it feels good to work here. (16)	❍	❍	❍	❍	❍
		I trust my colleagues. (20)	❍	❍	❍	❍	❍

Edward Straub

Please tell us a little about yourself...					
Remember this is anonymous. We have no way of linking you to your responses. We are asking for your team name so we can correlate and aggregate the data making the findings that much more meaningful.					

My current work team is:
Tier 1 Organization
Tier 2 Organization
If you selected "other" above, please enter the name of the team and organization here:
My current age is: (U.S. Census Ranges)
❍ 16 to 19 (1)
❍ 20 to 24 (2)
❍ 25 to 34 (3)
❍ 35 to 44 (4)
❍ 45 to 54 (5)
❍ 55 to 64 (6)
❍ 65 or over (7)
My role is best described as...
❍ Program/Project Management (1)
❍ Contracting (2)
❍ Resource management (3)
❍ Engineering (RDE) (4)
❍ Planning (5)
❍ Maintenance (7)
❍ Logistics (8)
❍ Administrative support (9)
❍ Testing / Evaluation (11)
❍ Fabrication / Production (12)
❍ Other (explain) (6) _____
My gender is:
❍ Male (1)
❍ Female (2)
I have been employed by the government for this many years:
❍ 1-5 (1)
❍ 6-10 (2)
❍ 11-15 (3)
❍ 16-20 (4)
❍ 21-25 (5)
❍ 25-30 (6)
❍ 30+ (7)

My grade (or military rank or demonstration equivalent) is:
❍ GS-15+ (1)
❍ GS-14/15 (2)
❍ GS-12/13 (3)
❍ GS-10/11 (4)
❍ GS-8/9 (5)
❍ GS below 8 (7)
❍ Intern (8)
❍ Co-Op (9)
❍ Contractor (11)
❍ Other (explain) (10) _____
Q30 I have been involved in Defense Acquisitions (in any capacity) for about this many years...
❍ 1-5 (1)
❍ 6-10 (2)
❍ 11-15 (3)
❍ 16-20 (4)
❍ 21-25 (5)
❍ 25-30 (6)
❍ 30+ (7)
Q31 My type of employment is...
❍ Civilian (1)
❍ Military (2)
❍ Contractor (4)
❍ Other (explain) (3) _____
Q32 The type of role in which I currently support my team is best described as:
❍ Core (1)
❍ Matrix (2)
❍ IPT (3)
❍ Other (explain) (4) _____
Q33 I've had this many full-time jobs other han with DOD or supporting the DOD...
❍ 0 (6)
❍ 1 (1)
❍ 2 (2)
❍ 3 (3)
❍ 4 (4)
❍ 5+ (5)

Q34 Thank you again for taking he ime to complete our anonymous survey. Your responses will be aggregated and used to inform new research on team dynamics in defense acquisitions and life cycle management.

REFERENCES

Aguinis, H., Beaty, J. C., Boik, R. J., & Pierce, C. a. (2005). Effect size and power in assessing moderating effects of categorical variables using multiple regression: a 30-year review. *The Journal of Applied Psychologypplied Psychology*, *90*(1), 94–107. doi:10.1037/0021-9010.90.1.94

Apelian, D., Alleyne, A., Handwerker, C. A., Hopkins, D., Isaacs, J. A., Olson, G. B., … DeVincent Wolf, S. (2004). *Accelerating Technology Transition: Bridging the Valley of Death for Materials and Processes in Defense Systems*. Washington, D.C.: National Academies Press. Retrieved from http://www.nap.edu/catalog.php?record_id=11108

Axelrod, R. (2006). *The Evolution of Cooperation* (Revised Ed.). New York: Basic Books.

Balkundi, P., & Harrison, D. A. (2006). Ties, Leaders, and Time in Teams: Strong inference about network structure's effects on team viability and performance. *Academy of Management Journal*, *49*(1), 49–68. doi:10.5465/AMJ.2006.20785500

Ball, P. (2012). *Why Society is a Complex Matter: Meeting Twenty-first Century Challenges with a New Kind of Science*. Berlin, Heidelberg: Springe-Verlag. doi:10.1007/978-3-642-29000-8

Bandura, A. (1989). Human agency in social cognitive theory. *The American Psychologist*, *44*(9), 1175–84. doi:10.1037/0003-066X.44.9.1175

Bandura, A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, *52*(1), 1–26. Retrieved from http://www.annualreviews.org/doi/pdf/10.1146/annurev.psych.52.1.1

Bandura, A. (2010). Self-Efficacy. In *The Corsini Encyclopedia of Psychology*. John Wiley & Sons, Inc. doi:10.1002/9780470479216.corpsy0836

Baron, R. M., & Kenny, D. a. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–82. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/3806354

Bass, B. M. (1990). *Bass & Stogdill's Handbook of Leadership: Theory, Research, and Managerial Applications* (3rd ed.). New York: Simon & Schuster, Inc.

Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L. (2003). Cohesion and performance in groups: a meta-analytic clarification of construct relations. *The Journal of Applied Psychology*, *88*(6), 989–1004. doi:10.1037/0021-9010.88.6.989

Beavers, R., & Hampson, R. B. (2000). The Beavers Systems Model of Family Functioning. *Journal of Family Therapy*, *22*, 128–143.

Beavers, W. R., & Hampson, R. B. (2003). Measuring Family Competence: The Beavers Systems Model. In F. Walsh (Ed.), *Normal family processes: Growing diversity and complexity* (3rd ed., pp. 549–580). New York: Guilford Press.

Beavers, W. R., & Voeller, M. N. (1983). Family Models: Comparing and Contrasting the Olson Circumplex Model with the Beavers Systems Model. *Family Process*, *22*(1), 85–97.

Björnberg, Å., & Nicholson, N. (2007). The Family Climate Scales: Development of a New Measure for Use in Family Business Research. *Family Business Review*, *20*(3), 229–246. doi:10.1111/j.1741-6248.2007.00098.x

Boisot, M., & McKelvey, B. (2010). Integrating Modernist and Postmodernist Perspectives on Organizations: A complexity science bridge. *Academy of Management Review*, *35*(3), 415–433.

Boone, D. E. (1983). *An Evaluation of Organization Development Interventions: A Literature Review*. Maxwell AFB, AL.

Bowers, D. G., Franklin, J. L., & Pecorella, P. A. (1973). *A Taxonomy of Intervention: The Science of Organizational Development*.

Boyatzis, R. E. (2006). An Overview of Intentional Change from a Complexity Perspective. *Journal of Management Development*, *25*(7), 607–623. doi:10.1108/02621710610678445

Boyatzis, R. E. (2008). Leadership Development from a Complexity Perspective. *Consulting Psychology Journal: Practice and Research*, *60*(4), 298–313. doi:10.1037/1065-9293.60.4.298

Boyatzis, R. E., Goleman, D., & Rhee, K. S. (1999). Clustering Competence in Emotional Intelligence: Insights from the Emotional Competence Inventory (ECI). In R. Bar-On & J. D. A. Parker (Eds.), *Handbook of Emotional Intelligence*. Jossey-Bass.

Boyatzis, R. E., & Oliver, W. (2008). PEA NEA Survey and Scoring. Cleveland, OH.

Boyatzis, R. E., Rochford, K., & Jack, A. I. (2014). Antagonistic neural networks underlying differentiated leadership roles. *Frontiers in Human Neuroscience*, *8*(March), 114. doi:10.3389/fnhum.2014.00114

Boyatzis, R. E., Smith, M. L., & Blaize, N. (2006). Developing Sustainable Leaders Through Coaching and Compassion. *Academy of Management Learning & Education*, *5*(1), 8–24. doi:10.5465/AMLE.2006.20388381

Boyatzis, R. E., & Soler, C. (2012). Vision, Leadership and Emotional Intelligence Transforming Family Business. *Journal of Family Business Management*, *2*(1), 23–30. doi:10.1108/20436231211216394

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. Guilford Press.

Burke, C. S., Stagl, K. C., Salas, E., Pierce, L., & Kendall, D. (2006). Understanding Team Adaptation: A conceptual analysis and model. *The Journal of Applied Psychology*, *91*(6), 1189–207. doi:10.1037/0021-9010.91.6.1189

Carter, A. B. (2010). *Appendix 1 DOD Strategic Human Capital Plan Update: The Defense Acquisition Workforce*.

Cattell, R. B. (1966). *Handbook of Multivariate Experimental Psychology*. Chicago: Rand McNally.

Chandler Jr., A. D., & Hikino, T. (1994). *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, MA: The Belknap Press of Harvard University Press.

Chief Financial Officer. (2013). *Overview of the U.S. Department of Defense Fiscal Year 2013 Budget Request*. Washington, D.C.

Clark, H. J. (1989). *Organization Development: Concept, Process, and Applications in the Department of Defense*. Brooks AFB, TX.

Coffman, C. (2002). The High Cost of Disengaged Employees. *Gallup Business Journal*. Retrieved from http://businessjournal.gallup.com/content/247/the-high-cost-of-disengaged-employees.aspx

Costello, A. B., & Osborne, J. W. (2005). Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most From Your Analysis. *Practical Assessment, Research & Evaluation*, *10*(7).

Decker, G. F., & Wagner, L. C. (2011). *Army Strong: Equipped , Trained and Ready - Final Report of the 2010 Army Acquisition Review*. Washington, D.C.

Defense Acquisition University. (2012). *Defense Acquisition Workforce Demographics Overview* (Vol. 1). Retrieved from https://dap.dau.mil/workforce/Documents/FY13-Q1 DAW Demographics.pdf

Department of Defense. (2007). DoD Directive 5000.01: The Defense Acquisition System. Department of Defense.

Department of Defense. (2008). DoD Instruction 5000.02: Operation of the Defense Acquisition System. Department of Defense.

Dobbins, G. H., & Zaccaro, S. J. (1986). The Effects of Group Cohesion and Leader Behavior on Subordinate Satisfaction. *Group & Organization Management*, *11*(3), 203–219. doi:10.1177/105960118601100305

Eby, L. T., Meade, a. W., Parisi, a. G., & Douthitt, S. S. (1999). The Development of an Individual-Level Teamwork Expectations Measure and the Application of a Within-Group Agreement Statistic to Assess Shared Expectations for Teamwork. *Organizational Research Methods*, *2*(4), 366–394. doi:10.1177/109442819924003

Edwards, J. R., & Rothbard, N. P. (2000). Mechanisms Linking Work and Family: Clarifying the Relationship Between Work and Family Constructs. *Academy of Management Review*, *25*(1), 178–199. doi:10.5465/AMR.2000.2791609

Eide, P. K., & Allen, C. D. (2012). The More Things Change, Acquisition Reform Remains the Same. *Defense Acquisition Research Journal*, *19*(1), 99–120. Retrieved from http://www.dau.mil/pubscats/PubsCats/AR Journal/arj61/Eide61.pdf

Eisenhardt, K. M. (1989). Agency Theory: An Assessment and Review. *Academy of Management Review*, *14*(1), 57–74. doi:10.2307/258191

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272–299. doi:10.1037//1082-989X.4.3.272

Fornell, C., & Larcker, D. F. (1981). Evaluation Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(February), 39 – 50.

Fox, J. R., Allen, D. G., Lassman, T. C., Moody, W. S., & Shiman, P. L. (2011). *Defense Acquisition Reform , 1960 – 2009 An Elusive Goal*. Washington, D.C.: Center of Military History, U.S. Army.

Gagne, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*(4), 331–362. doi:10.1002/job.322

Gagne, M., Forest, J., Gilbert, M.-H., Aube, C., Morin, E., & Malorni, A. (2010). The Motivation at Work Scale: Validation Evidence in Two Languages. *Educational and Psychological Measurement*, *70*(4), 628–646. doi:10.1177/0013164409355698

Gansler, J. S. (2007). *Urgent Reform Required: Army Expeditionary Contracting*. Retrieved from http://www.army.mil/docs/

Gibson, C. B., & Zellmer-bruhn, M. E. (2001). Metaphors and Meaning: An Intercultural Analysis of the Concept of Teamwork. *Administrative Science Quarterly*, *46*(2), 274–300.

Goleman, D. (2006). *Social Intelligence: The New Science of Human Relationships* (Kindle Ed.). New York: Bantam Dell.

Goleman, D., Boyatzis, R. E., & McKee, A. (2002). *Primal Leadership: Learning to Lead with Emotional Intelligence* (Kindle.). Harvard Business School Press.

Gully, S. M., Devine, D. J., & Whitney, D. J. (1995). A Meta-Analysis of Cohesion and Performance: Effects of Level of Analysis and Task Interdependence. *Small Group Research*, *26*(4), 497–520. doi:10.1177/1046496495264003

Hair, J., Black, W., Babin, B., & Anderson, R. (2012). *Multivariate Data Analysis* (7th ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.

Hampson, R. B., Hulgus, Y. F., & Beavers, W. R. (1991). Comparisons of Self-Report Measures of the Beavers Systems Model and Olson's Circumplex Model. *Journal of Family Psychology*, *4*(3), 326–340. doi:10.1037//0893-3200.4.3.326

Hinkin, T. R. (1998). A Brief Tutorial on the Development of Measures for Use in Survey Questionnaires. *Organizational Research Methods*, *1*(1), 104–121. doi:10.1177/109442819800100106

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. doi:10.1080/10705519909540118

Iacobucci, D., Saldanha, N., & Deng, X. (2007). A Meditation on Mediation: Evidence That Structural Equations Models Perform Better Than Regressions. *Journal of Consumer Psychology*, *17*(2), 139–153. doi:10.1016/S1057-7408(07)70020-7

Jarvis, C. B., Mackenzie, S. B., & Podsakoff, P. M. (2003). A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research. *Journal of Consumer Research*, *30*(2), 199–218. Retrieved from http://www.jstor.org/stable/10.1086/376806

Judge, T. A., Hurst, C., & Simon, L. S. (2009). Does it pay to be smart, attractive, or confident (or all three)? Relationships among general mental ability, physical attractiveness, core self-evaluations, and income. *The Journal of Applied Psychology*, *94*(3), 742–55. doi:10.1037/a0015497

Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The Job Satisfaction - Job Performance Relationship: A Qualitative and Quantitative Review. *Psychological Bulletin*, *127*(3), 376–407. doi:10.1037/0033-2909.127.3.376

Jung, D. I., & Sosik, J. J. (2002). Transformational Leadership in Work Groups: The Role of Empowerment, Cohesiveness, and Collective-Efficacy on Perceived Group Performance. *Small Group Research*, *33*(3), 313–336. doi:10.1177/10496402033003002

Kadish, R., Abbot, G., Cappuccio, F., Hawley, R., Kern, P., & Kozlowski, D. (2006). *Defense Acquisition Performance Assessment*. Washington, D.C.

Kadushin, C. (2012). *Understanding Social Networks: Theories, concepts, and findings* (Kindle ed.). New York: Oxford University Press.

Kahn, W. a. (1990). Psychological Conditions of Personal Engagement and Disengagement At Work. *Academy of Management Journal*, *33*(4), 692–724. doi:10.2307/256287

Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark IV. *Educational and Psychological Measurement*, (34), 111–117.

Kendall, F. (2012). Better Buying Power 2.0: Continuing the Pursuit for Greater Efficiency and Productivity in Defense Spending. Washington, D.C.: Department of Defense.

Kendall, F. (2014). What Really Matters in Defense Acquisition. *Defense AT&L*, (February), 2–3.

Kenny, D. A. (2012). Multiple Latent Variable Models: Confirmatory Factor Analysis. *David A. Kenny's Homepage*. Retrieved May 12, 2014, from http://www.davidakenny.net/cm/mfactor.htm

Kirkman, B. L., & Rosen, B. (1999). Beyond Self-Management: Antecedents and Consequences of Team Empowerment. *Academy of Management Journal*, *42*(1), 58–74.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. Guilford press.

Kozlowski, S. W. J., & Bell, B. S. (2012). Work Groups and Teams in Organizations. In I. B. Weiner, N. W. Schmitt, & S. Highhouse (Eds.), *Handbook of Psychology, Industrial and Organizational Psychology* (2, Illustr., pp. 412–469). John Wiley & Sons, Inc. Retrieved from http://books.google.com/books?id=5-QtaFWr3HUC

Kyndt, E., Raes, E., Dochy, F., & Janssens, E. (2013). Approaches to Learning at Work: Investigating Work Motivation, Perceived Workload, and Choice Independence. *Journal of Career Development*, *40*(4), 271–291. doi:10.1177/0894845312450776

Labaki, R., Michael-Tsabari, N., & Zachary, R. K. (2013). Exploring the Emotional Nexus in Cogent Family Business Archetypes. *Entrepreneurship Research Journal*, *3*(3), 301–330. doi:10.1515/erj-2013-0034

Laloux, F. (2014). *Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage of Human Conciousnes*s. Brussels, Belgium: Nelson Parker.

Lord, R. G., & Hall, R. J. (1992). Contemporary views of leadership and individual differences. *The Leadership Quarterly*, *3*(2), 137–157. doi:10.1016/1048-9843(92)90030-J

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, *4*(1), 84–99. doi:10.1037//1082-989X.4.1.84

Mahon, E. (2010). *Organizational and Individual Drivers of Employee Engagement: A Contingency Perspective*. Case Western Reserve University.

Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The Influence of Shared Mental Models on Team Process and Performance. *The Journal of Applied Psychology*, *85*(2), 273–83. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10783543

Mathieu, J. E., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team Effectiveness 1997-2007: A Review of Recent Advancements and a Glimpse Into the Future. *Journal of Management*, *34*(3), 410–476. doi:10.1177/0149206308316061

Matsunaga, M. (2010). How to Factor-Analyze Your Data Right: Do's , Don'ts , and How-To's. *International Journal of Psychological Research*, *3*(1), 97–110.

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional Intelligence. *Annual Review of Psychology*, *59*, 507–36. doi:10.1146/annurev.psych.59.103006.093646

Mayer, J. D., & Salovey, P. (1995). Emotional intelligence and the construction and regulation of feelings. *Applied and Preventive Psychology*, *4*(3), 197–208. doi:10.1016/S0962-1849(05)80058-7

Meek, V. L. (1988). Organizational Culture: Origins and Weaknesses. *Organization Studies*, *9*(4), 453–473. doi:10.1177/017084068800900401

Miller, S. P. (2014a). *Developing Next-Generation Leadership Talent in Family Businesses: Family Climate Matters*. Case Western Reserve University. Retrieved from http://intranet.weatherhead.case.edu/edmResearch/files/year3/Miller-Quantitative Paper-Final.pdf

Miller, S. P. (2014b). Next-generation leadership development in family businesses: the critical roles of shared vision and family climate. *Frontiers in Psychology*, *5*(December), 1–14. doi:10.3389/fpsyg.2014.01335

Mitchell, M. (2009). *Complexity: A Guided Tour* (Kindle Ed.). New York: Oxford University Press.

Mullen, B., & Copper, C. (1994). The relation between group cohesiveness and performance: An integration. *Psychological Bulletin*, *115*(2), 210–227. doi:10.1037//0033-2909.115.2.210

Neff, J. E. (2011). *Non-Financial Indicators of Family Firm Performance: A Portfolio Model Approach*. Case Western Reserve University.

Neuman, G. A., & Wright, J. (1999). Team Effectiveness: Beyond Skills and Cognitive Ability. *The Journal of Applied Psychology*, *84*(3), 376–89. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10380418

Nunnaly, J. (1978). *Psychometric Theory*. New York: McGraw-Hill.

O'brien, R. M. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality & Quantity*, *41*(5), 673–690. doi:10.1007/s11135-006-9018-6

Office of the Deputy Chief Management Officer: version 2.0. (2013). Defense Business Systems Investment Management Process Guidance. Washington, D.C.: Department of Defense.

Olson, D. H. (2000). Circumplex Model of Marital and Family Systems. *Journal of Family Therapy*, *22*, 144–167.

Olson, D. H. (2011). FACES IV and the Circumplex Model: validation study. *Journal of Marital and Family Therapy*, *37*(1), 64–80. doi:10.1111/j.1752-0606.2009.00175.x

Olson, D. H., & Gorall, D. M. (2003). Circumplex model of marital and family systems. In F. Walsh (Ed.), *Normal Family Processes* (3rd ed., pp. 514–547). New York: Guildford Press.

Olson, D. H., & Gorall, D. M. (2006). FACES IV & the circumplex model. *Life Innovations, Inc.*

Packard, D. (1986). *A Quest for Excellence, Final Report to the President by the Blue Ribbon Commission on Defense Management*. Washington, D.C.

Pearson, A. W., Bergiel, E., & Barnett, T. (2014). Expanding the Study of Organizational Behaviour in Family Business: Adapting Team Theory to Explore Family Firms. *European Journal of Work and Organizational Psychology*, *23*(5), 657–664. doi:10.1080/1359432X.2014.911174

Pescosolido, A. T., & Saavedra, R. (2012). Cohesion and Sports Teams: A Review. *Small Group Research*, *43*(6), 744–758. doi:10.1177/1046496412465020

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, *88*(5), 879–903. doi:10.1037/0021-9010.88.5.879

Punaro, A. (2012). *Report to the Secretary of Defense: Linking and Streamlining the Defense Requirements, Acquisition, and Budget Processes*. Retrieved from http://dbb.defense.gov/pdf/FY12-02_Linking_and_Streamlining_the_Def_Req_Acq_and_Budget_Processes.pdf

Putnam, R. D. (1995). Bowling Alone. *Journal of Democracy*, *6*(1), 65–78.

Richardson, K. A. (2008). Managing Complex Organizations: Complexity Thinking and the Science and Art of Management. *Emergence: Complexity Organization*, *10*(2), 13–26. Retrieved from http://www.kurtrichardson.com/Publications/ManCompOrgs.pdf

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, *25*(1), 54–67. doi:10.1006/ceps.1999.1020

Salas, E., & Fiore, S. M. (2004). Why Team Cognition? An Overview. In E. Salas & S. M. Fiore (Eds.), *Team Cognition: Understanding the Factors That Drive Process and Performance* (1st ed., pp. 3–10). Washington, D.C.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. *Educational and Psychological Measurement*, *66*(4), 701–716. doi:10.1177/0013164405282471

Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. B. (2002). The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach. *Journal of Happiness Studies*, *3*, 71–92.

Schwartz, M. (2009). *Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process*. Washington, D.C.

Schwartz, M. (2013). *Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process*.

Seong, J. Y., Kristof-Brown, a. L., Park, W.-W., Hong, D.-S., & Shin, Y. (2012). Person-Group Fit: Diversity Antecedents, Proximal Outcomes, and Performance at the Group Level. *Journal of Management*. doi:10.1177/0149206312453738

Sonnentag, S. (2003). Recovery, Work Engagement, and Proactive Behavior: A NewLook at the Interface Between Nonwork and Work. *Journal of Applied Psychology*, *88*(3), 518–528. doi:10.1037/0021-9010.88.3.518

Sorenson, S., & Garman, K. (2013). How to Tackle U.S. Employees' Stagnating Engagement. *Gallup Business Journal*. Retrieved from http://businessjournal.gallup.com/content/162953/tackle-employees-stagnating-engagement.aspx

Spector, P. E. (2006). Method Variance in Organizational Research: Truth or Urban Legend? *Organizational Research Methods*, *9*(1959), 221–232. doi:10.1177/1094428105284955

Spencer, L. M., & Cullen, B. J. (1979). *Evaluation of Army Organizational Development Interventions*. Alexandria, VA.

Straub, E. (2013). *All in the Family: A New View of The Social System of Defense Acquisitions Programs*. Case Western Reserve University.

Sundstrom, E., de Meuse, K. P., & Futrell, D. (1990). Work Teams: Applications and effectiveness. *American Psychologist*, *45*(2), 120–133. doi:10.1037//0003-066X.45.2.120

Tannenbaum, S. I., Mathieu, J. E., & Cohen, D. (2012). Teams Are Changing: Are Research and Practice Evolving Fast Enough? *Industrial and Organizational Psychology*, *5*, 2–24.

U.S. Army. (2011). Army Regulation 70-1: Research, Development, and Acquisition. Headquarters, Department of the Army.

Von Bertalanffy, L. (1972). The History and Status of General Systems Theory. *Academy of Management Journal*, *15*(4), 407–426.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2008). Organizing for High Reliability: Processes of Collective Mindfulness. In A. Boin (Ed.), *Crisis Management Volume III* (pp. 31–66). Los Angeles: Sage Publications. Retrieved from http://politicsir.cass.anu.edu.au/staff/hart/pubs/46 t Hart.pdf#page=37

Wiatrowski, W. J. (2012). The Last Private Industry Pension Plans: A Visual Essay. U.S. Bureau of Labor Statistics. Retrieved from http://www.bls.gov/opub/mlr/2012/12/art1full.pdf

Wolin, S. J., & Bennett, L. A. (1984). Family Rituals. *Family Process*, *23*(3), 401–420.