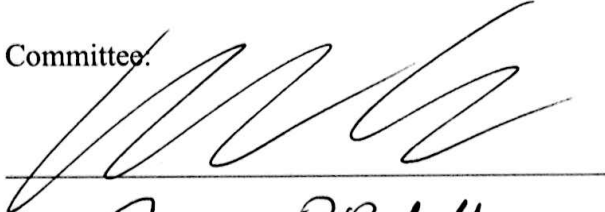


AN ORGANIZATIONAL APPROACH TO ENTREPRENEURSHIP IN THE
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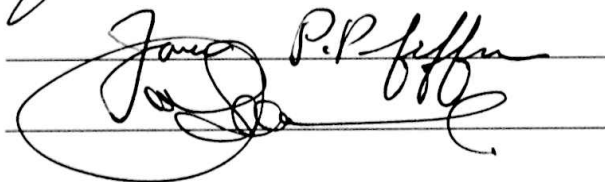
by

Aaron M. Arnold
A Dissertation
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Doctor of Philosophy
Public Policy

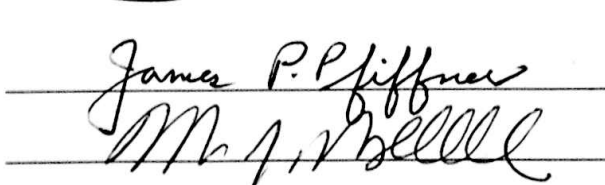
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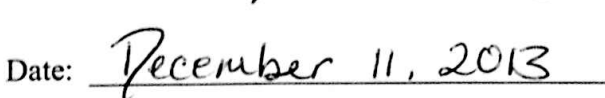
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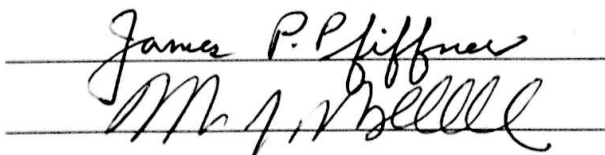
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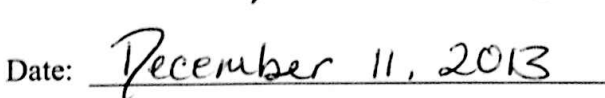
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An Organizational Approach to Entrepreneurship in the Federal Sector

A Dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy at George Mason University

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ACKNOWLEDGMENTS

To my beautiful wife, Emily. Thank you for all your support and patience throughout this endeavor. I would also like to thank my mom, Kim Hodge, and my wonderfully supportive family. Your words of encouragement are always a bastion of inspiration.

My sincere gratitude to my dissertation committee, Dr. Zoltan Acs, Dr. Jim Pfiffner, and Dr. Mark Addleson. Your guidance, critiques, and patience were invaluable and instrumental in conceptualizing and completing this dissertation. Also, thank you Dr. Audretsch for agreeing to take on the task of external reader. I would also like to thank Dr. Susan Tolchin and Dr. Lee Fritschler for your guidance during my early years at SPP. Finally, a debt of gratitude to Shannon Williams for coordinating countless forms and keeping me on track.

Of course, I would not have been able to take this academic journey without the support and guidance of many of my friends and professional colleagues who patiently entertained more than a few of my crazy ideas.

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ABSTRACT

AN ORGANIZATIONAL APPROACH TO ENTREPRENEURSHIP IN THE FEDERAL SECTOR

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George Mason University, 2014

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Public administration research rarely takes an organizational approach to better understanding the boundaries of entrepreneurship within the Federal sector, despite the increasing role that career bureaucrats play in both the implementation and formulation of public policy. This dissertation explores the effects of organizational mission, involvement, consistency, and adaptability—scales reflective of culture, environment, and structure—on Federal employees' perceptions of innovativeness and proactiveness. A multivariate statistical analysis of Federal employee survey data finds that the role of organizational culture, environment, and structure within Federal agencies is mostly consistent with private sector research on organizational entrepreneurship. The results imply that organizational traits are important when considering management reform efforts that rely on entrepreneurial activity among career civil servants.

CHAPTER ONE: INTRODUCTION

There is no more forlorn spectacle in the administrative world than an agency and a program possessed of statutory life, armed with executive orders, sustained in the courts, yet stricken with paralysis and deprived of power. An object of contempt to its enemies of despair to its friends.

Norton E. Long (1949, 257)

Background

United States Government scholars and practitioners have long sought managerial reforms within the public administration to increase performance without undermining basic expressions of democratic values. One particular difficulty lies in bringing innovation and creativity within the sphere of governmental organizational life, without taking unnecessary risks, and sacrificing accountability and control. However, budget crises and growing fiscal concerns are pressuring public agencies to do more with less. Consequently, theorists and practitioners are increasingly scrutinizing government bureaucrats' roles in *implementing* and *formulating* public policy—ultimately searching for effective and efficient policy outcomes. In order to establish effective organizational management paradigms capable of addressing complex public policy problems, scholarship must reevaluate the *a priori* public administration assumptions that “public and private management are fundamentally alike in all unimportant respects” (Sayre 1948).

Although the Wilsonian paradigm, which disassociates politics from the administration of government, is conceptually consistent with democratic values of governance, it is ill equipped to address public organizations' role in both implementing and formulating public policy. This view does not adequately acknowledge the influence on policy formulation connected to the career bureaucrats' discretion in complex organizational environments. Organizational transactions in complex environments under sometimes ambiguous and vague direction can have profound effects on policy outcomes, as well as feedback mechanisms for future policy formulation. Denhardt (2008, 112–113) states that, "...members of public organizations play an important role in formulating public policy, that their influence is widely felt in the designing of policies and programs, and that they continue to shape public policies through their efforts at implementation even after formal policies have been stated by the legislature, the executive, or the judiciary."

Some have gone as far as to declare an "intellectual crisis" in American public administration for the incongruence between Wilsonian public administration and the realities of governmental organizational life (Denhardt 2008, 134). Norton Long (1949, 259) pointedly argues that, "The bureaucracy under the American political system has a large share of responsibility for the public promotion of policy and even more in organizing the political basis for its survival and growth." Despite this conflict, research still generally accepts normative values of early public administration theory, which are not consistent with empirical evidence (Simon 1965).

This study rejects the theoretical and analytical thrust of the Wilsonian paradigm, which fails to recognize the bureaucracy's influence on implementing and formulating public policy. Instead, this research considers the individual bureaucrat to have increasingly prominent roles in decisions that affect policy implementation, outcomes, and shape future policy (Long 1949). Moreover, this research acknowledges that government organizations operate within a complex system, replete with competing and sometimes contradictory demands. This implies that it might not always be feasible to implement management systems that promote creativity and innovation. However, understanding the dynamics and interplay between the organization, its people, and its outcomes are paramount to a complete understanding of US policy systems.

Starting in the 1970's, public administration research began to emphasize the managerial and organizational aspects of bureaucratic life, and how these factors affect performance and service delivery. This public management lens provides an approach to understanding public policy responsiveness—the transactions between bureaucrats' decisions and community preferences. Pollit (1990, 2–3) states, "...management is a separate and distinct organizational function and one that plays the crucial role in planning, implementing, and measuring the necessary improvement in productivity."

The 1970's financial crisis forced government to find ways to make government work better and cost less (Denhardt 2008, 137). From this, the New Public Management (NPM) emerged as a paradigm for public managers to increase organizational performance by focusing on organizational attributes, such as structure, processes and procedures, decentralization, and clarifying missions, goals, and objectives.

David Osborne and Ted Gaebler captured this growing phenomenon best in their book, *Reinventing Government*, where the authors outline ten principles government bureaucrats could implement to “reinvent” government. These include: 1) being a catalyst, rather than focusing too narrowly on core tasks, 2) empowering citizen involvement, 3) fostering competitive government service delivery, 4) transforming rule-drive to mission-drive government, 5) focusing on outcomes instead of inputs, 6) recognizing and meeting the needs of the ‘customer,’ 7) introducing profit motive into government, 8) anticipating and stopping problems before they occur (rather than being reactive), 9) decentralizing complex hierarchical management, and 10) leveraging change through market forces (Osborne and Gaebler 1992). These ideas sparked four decades of research on government effectiveness and reform, which continues today (Osborne and Gaebler 1992; Denhardt 2008; Kettl 2005).

This study’s premises emerge partly from Osborne and Gaebler’s research agenda. Recently, public administration scholarship has seen resurgent interest in innovation within government management. One possible reason is an overall decrease in discretionary spending since 2009 (Austin 2013, 13). This might imply that government agencies have fewer resources to handle ever increasingly complex realities.

Research Objective and Questions

This research continues the decades-long tradition of exploring the shifting realities of public administration by questioning the assumptions that government organizations are bureaucratic lumbering giants that cannot support creativity and innovation. Theoretically, this research furthers Shockley, Stough, Haynes and Frank’s

(2006) research agenda, which claims existing theories of public sector entrepreneurship lack a sense of entrepreneurial discovery, tend to be trivial, and fail to address differences between public and private sector entrepreneurship. Specifically, this research focuses on better understanding how organizational attributes affect bureaucrats' perceptions of innovativeness and proactiveness—central tenets to concept of organizational entrepreneurship.

Although public administration scholars are examining new management paradigms, empirical and theoretical analyses remain largely separate from findings within business management literature. Scholars often ignore the similarities between public and private organizations when results fail to find evidence consistent with *a priori* assumptions based on the “administrative man” principles.

The objective of this research is to approach the idea of public sector entrepreneurship from an organizational perspective, but without *a priori* assumptions typically found in public administration literature. Instead, this study cites empirical evidence from both public and private sector management literature. Although definitions of public sector entrepreneurship vary, and some debate still exists, scholars generally take public entrepreneurship to mean, “...using resources in new ways to maximize productivity and effectiveness” (Osborne and Gaebler 1992, xix). This is a process that, “...entails creativity and innovation, a strong focus on ends (outcomes, mission) rather than means, and a proactive stance towards problems (prevent them before they emerge)” (Denhardt 2008, 144).

Critics of an entrepreneurial approach to public management often cite that business management reforms—like entrepreneurial management—pose significant challenges to long-standing traditions of accountability and established institutional processes. In fact, scholarship first acknowledged these special constraints to public entrepreneurship over 50 years ago (Ostrom 1965). Denhardt (2008, 144) claims that, “The quick translation of business values into the public sector raises substantial and troubling questions that public administrators should consider with great care.” While this study acknowledges the theoretical concerns and implications, it only tests the relative capacity to consider entrepreneurial management within the Federal sector.

This study’s central hypothesis is that a given set of structural, environmental, and cultural organizational traits will affect an agency member’s perception of innovativeness and proactiveness—key determinates of organizational entrepreneurship. This hypothesis takes an organizational approach to examining the boundaries of perceptions of bureaucrat entrepreneurship, and considers the implications of building entrepreneurial capacity through management reform.

This study operationalizes an organizational approach using the Denison Organizational Culture Model (DOCM), which assesses organizational mission, involvement, consistency, and adaptability. These traits are reflective of an underlying system of organizational structure, culture, and environment—where transactions between each trait and the employee can affect organizational performance. This research seeks a better understanding of the boundaries of this framework, through an empirical analysis of Federal employee’s inclinations towards perceptions of entrepreneurialism.

Significance of Research

Fundamentally, the purpose of seeking an entrepreneurial orientation within the public sector is to increase organizational performance—whether through better service delivery or increased responsiveness. Organizations may see these performance enhancements through a greater capacity to think creatively about old problems, or take proactive perspectives to emerging problems. Although this study does not directly address organizational effectiveness, its findings do imply that public management should focus on enabling entrepreneurial capacities.

Amy Zegart (2007), for example, provides an intriguing analysis of organizational failures at the CIA and FBI leading up to the September 11, 2001 terrorist attacks, which provide insights into how organizational factors affect performance. Ultimately, the CIA and FBI failed to adapt to emerging security threats as a result of organizational cultural pathologies, strong resistance to new technologies and tasks, misaligned and perverse promotion and award systems, and structural weakness that left gaps in accountability (Zegart 2007, 4).

The FBI failed to learn from prior mistakes partly because of severe structural and institutional flaws. A culture of reactivity, rather than proactiveness caused Special Agents to “miss the boat” when considering key pieces of information relevant to the terrorist plot (Zegart 2007, 122). Zegart’s critique provides a compelling argument for the importance of considering an organizational approach to understanding the determinants of innovation and creativity in government bureaucracy. What if the FBI’s organizational environment, culture, and structure did not create resistance to exploring new ideas?

This research also provides valuable insights into the debate on similarities between public and private organizations. Although scholars have yet to find a common approach to the public-private sector debate, Rainey and Bozeman (2000) believe the differences are over-estimated and over-stated—a rejection of early scholarship by Wallace Sayre. Others, like Denhardt (2008) take a more cautious approach—calling for the careful application and consideration of significant differences. This study helps to build upon the public-private sector debate by showing that the organizational traits that enable *entrepreneurial* behavior in the public sector are consistent with empirical findings from the private sector.

Finally, this study uses a unique methodological approach to public sector entrepreneurship. Currently, very few studies take an organizational approach to Federal sector entrepreneurship. Most are at the state and local levels, where access to information and employees is easier. This study uses scales reflective of structure, culture, and environment from an annual survey administered to all Federal employees, and tests them against employee perceptions of innovativeness and proactiveness.

Structure of Dissertation

Chapter 2 provides a detailed analysis of the salient academic literature and history of public sector entrepreneurship. The literature review highlights relevant theory, as well as significant points where academic research takes divergent paths, specifically integrating core themes from economics, public administration, and management scholarship.

Chapter 3 outlines this study's theoretical framework, assumptions, limitations, and primary hypotheses. The study's framework operationalizes organizational structure, environment, and culture through the DOCM, to test against perceptions of entrepreneurial orientation—specifically innovativeness and proactiveness.

Chapter 4 provides the method this dissertation uses to construct the DOCM scales. Exploratory factor analysis reduces the survey items from the Federal Employee Viewpoint Survey (FEVS) into scales reflective of organizational mission, consistency, involvement, and adaptability. Finally, Chapter 4 outlines a logistic regression model for to test the primary hypotheses.

Chapter 5 provides summary statistics and the results for each of the three models. This study uses three progressive models. The first model tests the primary hypotheses using the dependent and independent variables. The second and third model test the same hypotheses, but with addition of interaction terms among the independent variables. Chapter 5 also includes the predictive margins for each of the three logistic models.

Finally, Chapter 6 provides a discussion of the findings. It explores the consistencies and inconsistencies with prior research, the implications of the findings, and areas for future research.

CHAPTER TWO: LITERATURE REVIEW

What if Government had the leeway to be ‘entrepreneurial’? What if government administration and management had the flexibility to pursue opportunities that could enhance public services and achieve greater cost savings through efficiency? Consider that as of 2012, total U.S. Government expenditures reached 34% of Gross Domestic Product (GDP). Despite the influence Government exerts, management scholars and economists pay surprisingly little attention to the administration and management of public agencies.

Prevailing scholarly currents in economics, political science, and management largely dismiss public agencies as inefficient, resistant to change, and susceptible to political influence (Dahl 1947; Lindblom 1959; Downs 1967; Tullock 2002). The lack of market exposure and autonomy over budgets leads to complex and redundant structures, inflexible environments, greater red tape, and goal ambiguity according to many public administration and management scholars. However, despite these differences there is evidence to suggest that government and private enterprise experience organizational commitment, involvement, and adaptability in similar ways. Research on these similarities, which could provide innovative ways at managing government, such as management from an entrepreneurial perspective, is fragmented at best.

Over the last two decades, divergent research interests within the management and public administration fields resulted in compartmentalized frameworks and approaches. The objective of the following literature review is to show the critical junctions where public administration and management literature diverged, as well as how this study's organizational approach provides a unique perspective to understanding entrepreneurship in the public sector.

An Introduction to Public Management

Fundamentally, public management encompasses the activities, structures, process, procedures, rules, norms, incentives, cultures, and systems established with the public service that facilitate the realization and production of social outcomes. It is important, however, to distinguish the difference between public management and the broader field of public administration. The latter entails aspects that are not within the scope of this research, such as the rational and ethical considerations of pursuing certain social outcomes over others.

The notion that U.S. Government is wildly ineffective, wasteful, and expensive is largely unfounded—especially when compared to other international public administrations (Rainey 2009, 9). Yet, Congressional and Presidential leaders historically take negative views of public management—routinely calling for the need to reform. The Carter Administration pushed through the Civil Service Reform Act of 1978, which sought to exert controls over human resources. President Reagan, feeling that he could not adequately control career civil servants, systematically increased the number of political appointees. The Clinton Administration worked to implement a complete

overhaul of public management through the National Performance Review (NPR). The NPR sought to reform public management, but also focused largely on human resources by decreasing perceived barriers to hiring and firing. Recently, the George W. Bush Administration continued this tradition by instituting the “Agenda,” which focused on reform in human capital strategic management, competitive sourcing, improved financial performance, expanded electronic governance, and linking budgets to performance (Rainey 2009, 16).

Most presidential administrations cite a need for public management reform. The trend, however, is to typically focus on human resource aspects of the organization, rather than organizational environments and management. The exception to this trend is the NPR. Overall, the attention to public management reform is lacking in creativity and imagination when compared to the private sector. Only recently have scholars started seriously reconsidering management reform from the perspective of private enterprise. Even so, biases assumptions, and myths from early theoretical work on public administration and management are still pervasive.

Approaches to Organizational Management in the Public Sector

The study of management has a relatively clear trajectory from classic methods, which promoted a “one best way” of accomplishing tasks, to more integrative theories that consider the interrelations between structure, culture, and environment. However, the distinction between public and private organizations is less clear. At times scholarship on organizational management between public and private sector seems well integrated, and at other times, it appears as if scholars completely ignored the public sector.

The classical approach to organizational management took the stage during the late nineteenth and early twentieth century. From a public management perspective, it was Woodrow Wilson's 1887 article, "The Study of Administration" that argues for a rational and objective approach to government administration. For Wilson, the objective of public administration was to, "...to discover, first, what government can properly and successfully do, and, secondly, how it can do these proper things with the utmost possible efficiency and at the least possible cost either of money or of energy" (W. Wilson 1887).

In order to achieve this level of rationality and efficiency, Wilson argues for a split between politics and administration, and an improvement in government management by adopting "business-like" practices and attitudes. He felt the public service should be merit-based, rather than subject to patronage (Denhardt 2008; Sager and Rosser 2009; W. Wilson 1887). It is worth noting that these ideas are consistent with contemporaneous scholarship on management, which advocates largely for improving the efficiency of business.

Moving theory to practice, Frederick Taylor is one of the best-known scholars on the early scientific analysis of management. Taylor argues that within any organization, there is "one best way" to accomplish a series of tasks. The key, according to Taylor, is breaking work into its most basic and constituent tasks, which are measurable (Rainey 2009, 31). It is important to note that some scholars reject Taylor's ideas, and criticize his failure to account for the human, psychological, and social aspects of the organizational environment. Although Taylor did not actively apply his thesis to the public sector, he nonetheless was a large influence in the field.

German economist, sociologist, and historian Max Weber wrote extensively on social organization, and plays a significant influence in the works of classical organizational theorists. Most notably, Weber wrote on bureaucracy as a logical and rational form of organization for public administration (Sager and Rosser 2009, 1134). Weber states, “Experience tends universally to show that the purely bureaucratic type of administration is, from a purely technical point of view, capable of attaining the highest degree of efficiency and is...the most rational known means of carrying out imperative control over human beings” (Weber 1966, 328).

During the same period, other scholars, like Luther Gulick (1933), attempt to develop guiding principles of administrative management, such as planning, organizing, supervision, and control (Rainey 2009, 30). One of the central tenets of Gulick’s principles was achieving technical efficiency through homogeneity within work units. It is important to note that while these classic methods may not suffice for “knowledge” organizations, they may be perfectly suited for “tame” organizational problems, which are characterized by work units with highly repetitive and predictable tasks (Rittel and Webber 1973). Gulick and Taylor’s academic contributions would later have adversarial effects on public management within the context of innovation, where diversity and information diffusion are core concepts (Everett M Rogers 2003).

Negative reactions to the classical approach emerged first out of the human relations movement, which seeks a better understanding of the interactions between people and their organizational environments from sociological and psychological perspective. An analysis of an earlier study of the Western Electric Company led

researchers to the conclusion that organizational expectations altered social settings, which in turn altered productivity (Rainey 2009, 35). These findings helped to reinforce the importance of material rewards, environmental conditions, and other intangibles, such as, employee recognition.

Other research pushed to move beyond the “theoretical” approaches. Barnard (1948), for example, explains the “empirical reality” of organizations—rejecting the classical approach—by focusing on how leaders induced and coordinated activities. Barnard illustrates his point, stating, “One could not determine very closely how the government of the United States works from reading the Constitution, its court decisions, its statutes, or its administrative regulations” (Barnard 1948, 52). Similarly, Herbert Simon (1957) argues for realistic fact-based judgments with public resources. Simon believes the concept of an economic man is an oversimplification of reality, and instead, public administrators use the best information available to them at that time. Simon describes this as “satisficing”—making a satisfactory decision based on incomplete information (Simon 1957)

One of the most important contributions to this line of scholarship was the integration of “Theory X and Y” within the context of management. From the psychology field, Theory X assumes that employees inherently dislike work, and will avoid tasks if possible. Threat and coercion are the main behavioral inducements in Theory X. Alternatively, Theory Y saw the individual as capable of self-direction and self-motivation. Within the context of management, Theory X describes those who dislike their positions and need supervision, while Theory Y describes those who like their

positions and need little supervision (McGregor 1960). The core concept of this distinction is immensely important to understanding the later developments on organizational commitment, performance, and corporate entrepreneurship. Self-motivation and self-direction are critical components to remaining alert to, and exploiting potential opportunities, as well as understanding and accepting associated risks.

During the late 1960's through the 1980s, other vernacular made its way into the organizational sciences to explain behavior, motivation, and performance. Contingency theory, an early favorite, stipulates that there is no "one best way" to organize (Perrow 1979; Mintzberg 1979). Katz and Kahn (1966) use a systems approach to explain the complex interactions between inputs, throughputs, outputs, and feedback. Other related works include organizational adaption of different structures in response to contingencies (Woodward 1965), organizational environment as a determinant of structure (Burns and Stalker 2001), predictability of tasks (Perrow 1973), and the effect of complex organizational environments (Thompson 2003).

Overall, these studies produced great swaths of somewhat disjointed literature on organizational theory. Moreover, most did not consider public sector organizations. Rainey (2009, 50) states, "...many organization theorists have paid so little attention to a distinction between public and private organizations that any controversy over the matter remains quiet in most major journals on organization theory and outside of public administration journals." The implication is that any distinction lacks real importance with the academic communities. However, these studies did help focus a budding

scholarship on distinctions between public and private organizations, which are paramount to this study's central theme.

Relatively recently scholars began to seriously consider the differences between public and private organizations within a management context. Prior work, mainly from the public administration and political science fields, focus on the relationship between bureaucracies and external political systems. Economists tended to focus on the effects of non-market conditions, while the sociologists were concerned with internal managerial factors. Early empirical analyses on differences primarily focus on factors such as size, tasks, and technology. However, as many point out, factors such as a size disproportionately affect government agencies. For example, large government agencies will always tend to be more “bureaucratic” than smaller private enterprises. Scholars rarely consider the intersections between these approaches, thus creating somewhat of a knowledge gap.

Dahl and Linblom (1953) use “agencies and enterprises” to simplify the distinction—surmising that agencies have trouble integrating cost reduction strategies and developing clear objectives, which leads to enforcement through rigid rules and procedures rather than evaluation of products and services. However, Dahl and Linblom's analysis tends to be an oversimplification, which scholars address much later.

Bozeman (1989) provides a more complex distinction by classifying agencies by their degree of “publicness” on a continuum of political versus economic authority. On one hand, greater political authority would lead to greater “publicness,” while greater economic authority would lead to greater “privateness.” The interesting aspect of

Bozeman's work is that he does not consider the distinction between public and private agencies to be a black and white issue. This is important when considering various reform efforts because it leaves room for creativity within a management context.

Perry and Rainey (1988) develop a set of typologies to explain organizational distinctions. These typologies include bureau governmental corporation, government sponsored enterprise, regulated enterprise, government enterprise, state-owned enterprise, government contractor, and private entries. It is clear that Perry and Rainey have a similar conception as Bozeman, in terms of varying "shades" of public agencies.

Overall, the studies on the public/private distinction tend to conclude that implications vary depending on market and industry. Rainey (2009, 83–85) provides a summary of these findings and assertions, divided into three sections: environmental factors, organization-environment transactions, and organizational structure, roles and processes.

Environmental distinctions tend to focus on government agencies' absence of market exposure and its reliance on government funding. The lack of budgetary autonomy and political pressure tend to lessen the incentive to achieve cost reduction, operating efficiency, and higher performance.

In terms of organization-environment transactions, outputs are not readily transferable to economic markets. More often than not, government activities operate in monopolistic fashion, sometimes mandating participation or acceptance of regulation. Additionally, public managers are under more scrutiny than private sector leaders, and there tends to be an expectation of fairness, openness, and honesty. Of course, the

objective of this organizational design is to force agency leaders to focus on core tasks (J. Wilson 1989).

There have been numerous studies on the differences between organizational roles, structures, and procedures in public and private organizations. One important assertion is that structural complexity and environmental constraints lead to greater goal ambiguity within the public sector (Chun and Rainey 2005; Rainey, Pandey, and Bozeman 1995). In an early study on differences between public and private managers' service ethic, Buchanan (1975, 442) stipulates that, "...the relative absence of clear and precise goals, plus the absence of a market test for agency output, contributes to structural proliferation in the public sector. Imprecise goals make it difficult to identify and separate administrative procedures which are clearly goal-relevant from those which are not strictly necessary." The resulting ambiguous goals lead to increased rule emphasis, displaced goals, and can discourage innovative risk-taking (Buchanan 1975).

During the mid-nineties, research focuses on identifying empirical challenges to the goal ambiguity hypothesis. Rainey, Padney, and Bozeman (1995, 567) found, "...no differences between public and private managers on perceived organizational goal ambiguity." Moreover, Stazyk and Goerdel (2011) found that bureaucracy, operationalized through varying degrees of internal hierarchy, can counteract the negative effects of goal ambiguity.

Scholars cite structural complexity, often in the form of bureaucracy, as a primary distinction between public and private organizations. Gulick (1937) argues that public organizations are slow to expand and alter institutional structures to adapt to changing

social conditions. One reason is the extensive red tape and bureaucratic controls within public agencies. Michael Crozier, author of *The Bureaucratic Phenomenon*, re-examined Weber's concept of bureaucracy from a realist perspective to explain dysfunction within the public administration (Crozier 1964). Splitting from Weber's view of the ultimate expression of efficiency, Crozier views bureaucracy as, "...the slowness, the ponderousness, the routine, the complication of procedures and the maladapted responses of the bureaucratic organization to the needs which they should satisfy" (Crozier 1964, 3).

In terms of administrative authority, research generally shows that public organizations' management have less decision-making autonomy, control over subordinates, and flexibility due primarily to external political influences and complex structures. For example, management has little say in government personnel systems, which typically have stringent rules and regulations on hiring, firing, and incentive structures. It should be noted, however, that there is a small but growing literature that attempts to show that managers only perceive greater administrative constraints than what actual exists (Borins 2002; Borins 1998; Borins 2001). Of course, these distinctions provide the basis for this study.

Employee motivation has been a "go to" for researchers trying to understand the differences between public and private organizations. Early on, many did not view the concept of civil service in the United States as an altruistic occupation. Perry and Hondeghem (2008, 27) state that, "Following Woodrow Wilson's historic essay ... new values including loyalty to the people, devotion to democracy, and efficient government

were layered on the traditional ones of loyalty to the Constitution and the law. The ‘ideal’ civil servant was now seen as opting for public service because of a concern for public welfare and willing to put policy above party.” However, this view did not take hold until largely after the New Deal, and there was still little agreement on a “public ethos.” From a management perspective, this view is rather simple, and does not explain certain behavior patterns.

More recent approaches, primarily developed by Perry and Wise (1990), derive public service motivation from three types of motives. The first is affective, which is genuine conviction about the social importance of the work. Some of these theories focus largely on what motivates bureaucrats to work hard and ‘go by the book,’ put organizational needs ahead of their own, and go above and beyond the call of duty (DiIulio 1994, 281). The second is normative, which is a sense of obligation the individual has towards the society they live in. The third is rational, which is the individual’s desire to maximize his or her own needs for power, self-importance, or to advocate a special interest (J. Perry and Hondeghem 2008, 82). Perry and Hondeghem (2008, 71) state, “The likelihood that behavior will be directed by public service motivation depends on the publicness of an individual’s identity, its alignment with incentive systems governing the situation, the extent to which the identity is regulated autonomously rather than controlled, and other contextual factors such as goal content and goal intensity.”

Other scholars focus on a large swath of antecedents and correlates of public service motivation. Socio-demographic variables, such as age, gender, and education, are

found to have some bearing on public service motivation, but overall the findings are rather inconsistent (Naff and Crum 1999; J. Perry and Hondeghem 2008, 100; Alonso and Lewis 2001). Pandey and Moynihan (2006) find that ‘red-tape’ has a negative effect on public service motivation. Rainey (2009, 227) defines red-tape as, “...excessive and unduly expensive or burdensome rules and regulations.

Additionally, organizational tenure—a facet of public bureaucracy—is found to have a negative association with public sector motivation. One possible explanation is the frustrated service ethic suggested by Buchanan (1975). Perry and Hondeghem (2008, 107) state, “...even though individuals may join a public organization with high idealism, the lack of opportunities to experience valued outcomes firsthand can lead to a damping down of public service motivation.”

The preceding sections demonstrate that the distinction between a private and public organization are not always clear. More often than not, the public/private distinction relies more on different “shades” than black and white differences. The following sections continue to examine these distinctions, but from an organizational performance perspective.

Public Management and Organizational Performance

The Civil Service Reform Act of 1978 effectively institutionalized the belief that weak links between incentive systems leads to poor government performance. This helped contribute to a major divergence in scholarship on performance. While public administration management studies continued focusing on classical theory of the public law tradition and public accountability (Moe 2001), the literature on private enterprise

management focused on communication, shared values, flexibility, adaptability, and the mutual loyal and support of employees (Rainey 2009, 426).

What does it mean to be an effective public organization? Rainey and Steinbauer (1999, 12) claim that an effective organization “...performs well in discharging the administrative and operational features pursuant to the mission. It achieves the mission as conceived by the organization and its stakeholders, or pursues achievement of it in an evidently successful way.” This definition is useful because it is sufficiently broad enough to apply to all public organization, as well as effectively echo core elements from private enterprise effectiveness.

One of the earliest approaches to organizational performance is through goals. The traditional goal approach model of effectiveness, which public agencies have largely adopted, holds that organizations must have clear, articulable goals that are empirically observable and quantifiable (Yuchtman and Seashore 1967). Although government organizations have operationalized this approach through the formal expression of goals, critics have pointed to several conceptual flaws—“measurability” being the primary—that make applying the goals approach to government organizations problematic (Rainey 2009). Buchanan (1975) concludes that vagueness inherent in public organizations’ goals contribute to lower commitment, involvement, and satisfaction.

Yuchtman and Seashore (1967) developed the systems resource approach, which views effectiveness as a function of an organization’s ability to exploit external resources and opportunities. The authors theorized that the interdependence between the organization and its environment produces a set of input-output transactions, which are

observable through multiple factors including business volume, market penetration, youthfulness of the organizational members, and production and maintenance costs (Rainey 2009, 156; Yuchtman and Seashore 1967, 902). Although this model was ultimately a rejection of the goal hypothesis, it did lay the groundwork for the later multi-dimensional approaches, which are central tenets to this study.

The systems resource model is difficult to apply to public organizations, and was ultimately supplanted by Quinn and Rohrbaugh's (1983) competing values approach. Quinn and Rohrbaugh (1983, 363) claim that organizational effectiveness is a reflective measure, that "...does not emerge from the observation of actual organizations, but from the ordering, through multivariate techniques, of criteria that organizational theorists and researchers use to evaluate the performance of organizations." The competing value approach distills over thirty factors of organizational effectiveness into three primary dimensions: control and flexibility, internal and external focus, and means and ends. Ultimately, this approach surmises that organizations continually face competing values, which they must reconcile. However, the authors specify that, "...although certain pairs of concepts are at opposite locations in the value space and, therefore, are paradoxical in nature, this does not require that they are empirical opposites, mutually exclusive in actual organizational environments" (Quinn and Rohrbaugh 1983, 393).

Much of the literature on organizational attributes' effectiveness in public agencies can be broken into three categories: mission, leadership, and environment (Rainey and Steinbauer 1999; Bozeman and Rainey 1998). Research on missions finds that clearer missions that lead to better performance (Gold 1982; J. Wilson 1989;

Denhardt 2008; Hale 1996). Moreover open communication channels and an orientation towards the “customer” are also positively associated with an effective public organization (Holzer and Callahan 1998; Hale 1996).

As previously mentioned, public service motivation—in terms of organizational commitment and commitment to mission—are important factors in determining a government agencies’ success (Denhardt 2008). Some empirical evidence suggests that a “service orientation” is real among public sector employees, and that this orientation is a strong motivator for high performing civil servants (Crewson 1995; J. Perry and Hondeghem 2008, 139). Brewer and Selden (2000) conducted a multivariate study showing public service motivation as a strong predictor of organizational performance. Noting the subjectivity and difficulty in measuring organizational performance, the authors identified “agency level” and “individual” level factors that may affect federal agency performance (Brewer and Selden 2000, 690). Critics of these studies suggest the scholars, “...have utilized multivariate regression analysis...but these studies were testing complex model specifications that may require even more advanced statistical methods such as structural equation or hierarchical linear modeling to gauge the true impact of public service motivation on organizational performance” (J. Perry and Hondeghem 2008, 145)

Effective leadership is another critical factor in determining organizational effectiveness in the public sector. Discretionary authority and autonomy is a common theme within the literature—generally showing that greater autonomy and ability to delegate authority leads to more flexible and effective organizations (Gold 1982; J.

Wilson 1989). Moreover, developing adaptable organizations through an emphasis on learning also increases organizational effectiveness (Hale 1996; Brewer and Selden 2000; Denhardt 2008).

In terms of internal environmental conditions, studies show that placing value on organizational members by aligning incentive and reward systems with clearly defined goals and objectives lead to increased organizational performance (Gold 1982; Chun and Rainey 2005; Stazyk and Goerdel 2011; J. Wilson 1989, 198). Also, environments that are supportive of communication, collaboration, and teamwork are more effective (Hale 1996).

Moynihan and Pandey (2005) empirically test external environmental influences and internal management factors' effects on organizational performance. Using survey data from state government health and human services officials, the authors find that external factors have a positive impact on effectiveness, while management factors, such as the ability to create a developmental organizational culture, are positively associated with effectiveness (Moynihan and Pandey 2005, 421).

Culture has made a significant appearance in recent years as a contributing factor to organizational effectiveness. Moynihan and Pandey (2005, 426) use a non-contextual model of culture, primarily adapted from the competing values framework, to assess organizational culture across four cultural types: group, developmental, hierarchical, and rational. The group cultural typology focuses on people, rather than the organization. Developmental cultures are associated with flexibility and growth. Hierarchical cultures focus on people, control, and stability. In addition, rational cultures are associated with

strong organizational goals, planning, and efficiency. Overall, the authors find that culture does impact to performance, and that organizations with developmental cultures are likely to achieve significantly higher levels of effectiveness as perceived by its employees (Moynihan and Pandey 2005, 432). These findings could also merely suggest a general overall satisfaction with work environment—rather than some underlying cultural effect.

Pandey, Coursey, and Moynihan (2007) find that dimensions of organizational culture, namely developmentally oriented cultures, mitigate the negative effects of bureaucratic red tape. The authors state, “...two organizations with the same level of red tape might see their effectiveness suffer, but the organization with a culture more attuned to coping with and working around red tape is likely to experience smaller performance declines” (Pandey, Coursey, and Moynihan 2007, 416). Stazyk and Goerdel (2011) also used a developmental culture variable in their study of goal ambiguity and effectiveness in public organizations. Consistent with previous studies, the authors find a positive relationship between the developmental culture control variable and organizational effectiveness.

Innovation and Entrepreneurial Management in the Public Sector

The previous sections have deconstructed the differences between public and private organizations, explained variations in approaches determining organizational effectiveness, and described organizational attributes associated with effective public agencies. Although public management is a diverse field, literature shows that biases and myths still prevail in approaches to “making government more effective.” Consider the

previously mentioned national government management reform efforts. Although they paid lip service to leading ideas from management literature, they were doomed from the start because of a failure to change the underlying assumptions and beliefs. How can government expect change when the overarching belief is that government will naturally gravitate towards weak performance due to environmental and structural constraints?

Very little research emphasizes the entrepreneurial aspects of government administration and management from an organizational perspective, probably because an entrepreneurial public administration is a strange concept to consider. Although public administration scholars routinely discuss the merits of innovation within government (a necessary condition of entrepreneurship), they rarely address the concept of entrepreneurship. Why?

Start simply with Merriam-Webster's definition of an entrepreneur: "one who organizes, manages, and assumes the risks of a business or enterprise." The definition may conjure images of business leaders, like Bill Gates, Sergey Brin, and Steve Jobs—all barons of modern day technology, and exalted for their ability to organize, manage business, and spot opportunity at ideal moments. Although growth is the primary motivator for private enterprises, like Apple and Google, it is reasonable to conceive of a public agency with management systems that promote entrepreneurial activities in the same fashion as private enterprise.

Consider the case of Harvey Washington Wiley—an early Twentieth Century Government bureaucrat who is considered the father of the modern day Food and Drug Administration. Harvey's aggressive efforts in 1906 led to the passage of the Pure Food

and Drug Act, and the eventual establishment of the Bureau of Chemistry—an agency responsible for the legislation’s enforcement. By “exercising creativity, alertness, judgment, and persuasion,” Wiley was able to increase his agency’s size and strength—a bureaucrat entrepreneur (Coppin and High 1999, 12). The point is that entrepreneurs are not a uniquely private sector phenomenon. However, when it comes to public administration scholarship, biases, myths, and assumptions tend to prevail over the exploration of unconventional ideas that do not fit neatly into existing frameworks.

The following section continues the discussion on public agencies and performance by examining the role and relationship of entrepreneurship and organizational performance.

Foundations of Entrepreneurship and the Entrepreneurial Organization

Entrepreneurship is a diverse field, with significant contributions from public administration, psychology, sociology, political science, business, and economics. Stevenson and Jarillo (1990) distill the field into three main categories: when entrepreneurs act (economists), why entrepreneurs act (psychologists), and how entrepreneurs act (management). This research primarily focuses on the last approach—specifically the organizational factors that may foster entrepreneurship.

Although the term “entrepreneurship” was not coined until the early twentieth century, its roots can be traced to early eighteenth century classical economists, Adam Smith, Richard Cantillon, and John Stuart Mill. These early scholars argued that entrepreneurship was largely concerned with individual activities aimed at positive economic outcomes by locating business opportunities, accumulating resources,

producing products and services, creating organizations, and responding to government and society (McCraw 1997, 309; Kreft and Sobel 2005; Gartner 1985). Within these discussions on entrepreneurship are the threads of modern-discussions on risk, uncertainty, and organization.

Joseph Schumpeter, an economist, was one of the first to bring entrepreneurship into ‘mainstream’ economics. He believed entrepreneurship is a process of ‘creative destruction’—a process of economic progress through the destruction of prior economic order. For Schumpeter, it was this economic force that sustains capitalist growth, even though it ultimately undermines the system as a whole (Busenitz and Barney 1997; McClough 2008, 252). Later Israel Kirzner departs from Schumpeter’s notion that the entrepreneur disrupts market equilibrium by stressing that the entrepreneur is, instead, an arbitrageur whose superior knowledge of market imperfections provides him with competitive advantage (Kirzner 1973; Kirzner 1997).

One of Schumpeter’s most important contributions, and most salient to this research, is his definition of innovation. Schumpeter broadens the view of innovation to include combinations of new or existing knowledge, resources, and forms of organization, as well as making a distinction between innovation and invention (Schumpeter 1934, 65). Thus according to Schumpeter, the process of combining these activities is entrepreneurialism, and the person conducting these activities is the entrepreneur. However, it is important to note here that Schumpeter is very specific in his description of “new combinations.” This is important because later perspectives take

increasingly wider views, which are critical to understanding how entrepreneurship plays a role in public management.

Although Schumpeter's early works focus primarily on the individual entrepreneur, by 1947 Schumpeter begins arguing for innovation within large firms—an early conception of corporate entrepreneurship. Of particular relevance to this study's organizational approach to entrepreneurship in the public administration, Schumpeter makes two distinctions. First, he notes that the entrepreneurial act does not need to be grandiose, such as a market disruption. The entrepreneurial act may simply lie within “the humblest levels of the business world” (Schumpeter 1947, 151). Second, he makes an important distinction between enterprise and management. The implication is that although the management may facilitate the entrepreneurial function, the two acts are different (Schumpeter 1947, 151). Although Schumpeter does not explicitly state such, he implies that the act of being entrepreneurial is not manageable, which is antithetical to the underpinning assumptions of this research.

Up until the 1980's researchers were primarily concerned with the psychological traits of an entrepreneur (North 1990; McClelland 1961; Moon 1998; Schneider, Teske, and Minstrom 1995). This area of research focuses on individual motivations and deviation from norms. Although not the focus of this research, it is important to note that individual motivation plays a significant role in understanding organizational commitment—a central concept to in organizational effectiveness as previously discussed.

From the early 1980's to the mid-1990, scholars and practitioners primarily study *how* entrepreneurs act. These areas of research are primarily concerned with discussions of corporate entrepreneurship (Zahra 1993), intrapreneurship (Pinchot 1985), internal entrepreneurship (Vesper 1982), and strategic renewal (Guth and Ginsberg 1990; Sharma and Chrisman 1999, 13). Stevenson and Jarillo (1990, 18) write that, "...researchers analyze the characteristics of entrepreneurial management, how entrepreneurs are able to achieve their aims, irrespective of the personal reasons to pursue those aims and oblivious to the environmental inducements and effects of such actions." Summing up this movement, Steven Brandt (1986) of Stanford University writes, "The challenge is relatively straightforward. The United States must upgrade its innovative prowess. To do so, U.S. companies must tap into the creative power of their members. Ideas come from people. Innovation is a capability of the man. That capability is utilized when people give commitment to the mission and life of the enterprise and have the power to do something with their capabilities."

The implication of this stream of literature is that if entrepreneurship produces positive economic outcomes, then private enterprise should organize in a way that permits more entrepreneurial activities. The resulting concept is "corporate entrepreneurship"—efforts that generally represent frameworks for firms to facilitate the identification and pursuit of opportunities (M. Morris and Kuratko 2002; M. H. Morris and Jones 1999; Covin and Slevin 1991; Covin and Slevin 1989; Zahra 1993; Stevenson and Jarillo 1990).

This concept, however, reinvigorated debate about the definition of an entrepreneur. Can anyone be an entrepreneur? Is an entrepreneur a person who starts a business? An innovator? Competing views emerged, which threatened either too narrow or too broad of views on entrepreneurship. Some thought entrepreneurship should be limited to venture creation (Vesper 1982), while others focused on economic growth and knowledge diffusion (Everett M Rogers 2003; E.M. Rogers 1985). Still, others argue that entrepreneurship is merely a means for firms to gain competitive advantage (M. Morris and Kuratko 2002).

This research adopts the definition put forth by Stevenson and Jarillo (1990, 23): “entrepreneurship is a process by which individuals—either on their own or inside organizations—pursue opportunities without regard to the resources they currently control.” This definition is easily adaptable to public sector agencies. Implicit in Stevenson and Jarillo’s definition is the willingness to be entrepreneurial. That is, entrepreneurship does not necessarily require any special condition, only the *willingness* to pursue opportunity. This is another important point to consider within the context of public organizations, which operate under different environmental and structural conditions than private sector organizations.

In terms of corporate entrepreneurship, research focuses on perception of change (Drucker 1985), creation of new organizations and enterprise (Gartner 1985; Low and MacMillan 1988), behavior of the firm (Miller 1983; Moon 2000; Moon 1998), and organizational level processes (Stevenson and Jarillo 1990; Zahra 1993).

Drucker (1985) studies the role of “entrepreneurial management” in promoting openness to innovation, the willingness of an organization to adapt and change, and organizational performance metrics. Covin and Slevin (1991, 7) focus on a firm’s recombination of resources in order to extend a “domain of competence.” Jennings and Lumpkin (1989, 485) conducted a statistical analysis of entrepreneurial organizations, which supported the authors’ hypotheses that in entrepreneurial organizations, “... (a) decision making is more participative, (b) decision making relies more on specialized personnel, (c) performance objectives are developed from shared participation, and (d) managers will not be penalized if risky projects fail.” Guth and Ginsberg (1990) suggests that corporate entrepreneurship encompasses the development of new business within existing organizations, as well as the strategic renewal of the firm’s original ideas.

Morris and Kuratko (2002) distilled approaches to corporate entrepreneurship into three distinct frameworks. First, the domain framework, argues that corporate entrepreneurship encompasses internal innovation and strategic renewal (Guth and Ginsberg 1990). Second, the strategic integration framework approaches entrepreneurship as an overall orientation within a company (M. Morris and Kuratko 2002, 33). This perspective, first introduced by Covin and Slevin (1991), views corporate entrepreneurship as part of the organizational fabric—encompassing the firm’s mission, goals, objectives, and strategies and ultimately permitting managerial intervention. Finally, the interactive framework views corporate entrepreneurship as an interaction of organizational factors and individual characteristics (Hornsby et al. 1993). The most

salient aspect of this evolution is the realization of the need to approach organizational entrepreneurship from a multi-dimensional approach.

Generally, scholarship describes corporate entrepreneurship as an interaction between three core elements: a firm's ability to proactively search and identify opportunity, the firm's propensity to take risk, and finally the firm's degree of innovativeness. Covin and Slevin (1991) referred to the interaction of these variables as a firm's "entrepreneurial posture," while Miller (1983) used the phrase "entrepreneurial orientation."

Most research views innovation as a multi-stage process within organization. Generally, this entails idea generation, resource acquisition, production and model building, and adaptation (Everett M Rogers 2003, 170). According to Morris and Kuratko (2002), a firm is innovative when it emphasizes and encourages behaviors that deviate from the norm. It is important to note that what constitutes "behavioral norms" is somewhat debatable. According to Drucker (1985, 19) innovation is the specific tool entrepreneurs use to exploit change as an opportunity. Drucker's conception of innovation is interesting in that it is broad in scope, and is not limited to new products, services, or processes. The benefits of this broad view are apparent when placed with the context of public administration.

Risk, another element of the entrepreneurial organization, is simply defined as undertaking a project that entails some degree of failure. One common understanding is the degree to which an organization is, "...willing to pursue opportunities that have a reasonable likelihood of producing loss or significant performance discrepancies" (M.

Morris and Kuratko 2002, 41). Important to this concept is both the risk in pursuing an opportunity, as well as, the risk in *not* pursuing an opportunity. This is sometimes known as “missing-the-boat,” and is a prominent concept within public administration literature on alertness to opportunity (Downs 1967; J. Wilson 1989).

Finally, proactiveness refers to the degree, to which firms are acting on, rather than reacting to their environments. Venkataraman (1989) uses the term proactiveness in his study of strategic orientation to refer to a firm’s continuous search for market opportunities. Others have defined proactiveness as forward looking and initiating action, rather than reacting to a situation (M. Morris and Kuratko 2002; Bernier and Hafsi 2007).

Thus far, most research suggests companies with a stronger entrepreneurial orientation tend to perform better. In fact, understanding this relationship is the fundamental component of entrepreneurial management. Examples of performance indicators include: higher profits, income-to-sales ratios, the rate of growth in revenue, the rate of growth in assets, and the rate of growth in employment (M. Morris and Kuratko 2002, 53). Antoncic and Hisrich (2001), in a cross-cultural validation of organizational entrepreneurial constructs, validates findings to support the hypothesis that entrepreneurial orientation has a positive relationship to growth and profitability of an organization.

The general expectation is that increasing entrepreneurial orientation will increase overall performance. As previously discussed, for the purposes of this research, an adequate distinction between performance and effective is necessary. Organizational effectiveness is an abstract and dynamic concept that encompasses dimensions an

organization requires to succeed, while performance tends to encompass more concrete, measurable indicators. Richard et al. (2009, 722) define effectiveness as, "... organizational performance plus the plethora of internal performance outcomes normally associated with more efficient or effective operations and other external measures that relate to considerations that are broader than those simply associated with economic valuation..."

Public Sector Entrepreneurship

The first discussions of public sector entrepreneurship sought to apply principles of entrepreneurship to the public sector as a means to maximize government efficiency—an early spin-off of the public administration field. This early period is primarily concerned with the New Public Management movement, which views structural complexity as ill-suited to contemporary organizational environments, and promotes non-bureaucratic mechanisms to solve fundamental problems of bureaucracy (Edwards, Jones, and Lawton 2002). Interestingly, references to “entrepreneurial government” riddle the National Performance Review. Calling for shifts in top-down bureaucracy to entrepreneurial government that “generates change from the bottom up,” as well as creating a culture of entrepreneurship (Gore 1993). However, although NPR makes clear calls for entrepreneurial government, it does not provide adequate definitions of what an “entrepreneurial government” entails, other than cursory rhetoric regarding increased effectiveness and efficiency. Many critics claim that calls for entrepreneurial management within public administration merely displace the theory of public law,

replacing it with business axioms—i.e., substituting “citizen” for “customer.” These criticisms, however, are outside the scope of this study.

A formal definition of public entrepreneurship is still lacking, and depending on the governmental unit of analysis (federal, state, or local), entrepreneurship may entail only the administrative aspect of the government, or include the effects of the external political environment (such as Congressional policy making). In order to develop a theory of public sector entrepreneurship, Shockley et al. (2006, 218) put forth four elements, consistent with Kirznerian or Shumpeterian entrepreneurship: 1) an element of entrepreneurial discovery; 2) universal applicability across public and private sectors; 3) an understanding of systemic effects of entrepreneurship; and 4) an expanded sense of political profit opportunities.

There are four general research approaches to describing public sector entrepreneurship. The first takes an individual approach, and seeks to identify, primarily using case studies, individuals who have significantly effected change within their public sector organization. This approach, similar to the public service behavioral approach to motivation, focuses on unique attributes of individuals that (Lewis 1980, 233). While interesting, this stream has yet to produce a comprehensive theory or definition of public entrepreneurship, primarily because it largely discounts or completely ignores the influence of front-line workers. Additionally, it ignores whether the entrepreneurial behavior is truly an individual or a collective phenomenon. The second approach is focuses on the introduction of new movements, or the creation of public agencies that serve to produce meaningful social, political, or economic change (Drucker 1995). Unlike

the previous stream, these efforts are typically a function of large groups, rather than any one individual (M. Morris and Kuratko 2002, 306). The third approach focuses on strategic management and leadership principles, which is thought to allow public organizations, "...to be more likely to identify new opportunities and generate new process and service innovations, thereby affecting organizational transformation" (M. Morris and Kuratko 2002, 308; Nutt and Backoff 1993). Finally, the fourth approach, which occurs during the Clinton administration, largely focuses on the "re-inventing" government movement.

As previously mentioned, The *National Performance Review*, which focuses on cost-cutting initiatives and enhancing organizational efficiency throughout the Federal bureaucracy, is one example of an early attempt to enhance public sector effectiveness, by introducing market-based managerial concepts. Under the Clinton administration, the National Performance Review attempts to integrate corporate managerial processes into public sector bureaucracies. While the National Performance Review did not gain sustainable momentum, it did raise important questions about the applying principles of corporate management to the public sector. For example, NPR was one of the first management reforms to use the term "entrepreneurial government."

In Schumpeter's writing on innovation, he clearly distinguishes public employees as having the capacity to be innovative, which helps lay groundwork for future discussion on the 'public sector entrepreneur.' Morris and Kuratko (2002, 318) define public entrepreneurship as, "...the process of creating value for citizens by bringing together unique combinations of public and or private resources to exploit social opportunities.

Carl Bellone (1992, 132) defines public entrepreneurs as agents of entrepreneurial states who, "...seek to find new sources of revenue, besides the more traditional taxes, to increase tax bases through economic development projects and to augment the number of private-sector entrepreneurs within their boundaries." Yet another definition of a public sector entrepreneur is someone, "...who creates or profoundly elaborates a public organization so as to alter greatly the existing pattern of allocation of scarce public resources" (Bernier and Hafsi 2007, 489). These definitions account for the lack of profit-motivated growth and constraints within the public organization's environmental domain, such as the lack of budget autonomy, and are fully consistent with traditional conceptions of entrepreneurship.

The perception of "entrepreneurial" activity within the government is another area of focus. A recent survey suggests that many public sector bureaucrats believe public sector entrepreneurship exists, and is a manageable phenomenon (M. Morris and Kuratko 2002, 318). In Morris and Kuratko's (2002, 318) survey, although 59% of public sector managers believed entrepreneurship did not apply to public sector agencies, 84% believed entrepreneurship would have a positive impact, and 85% agreed that public sector environments could be controlled to promote entrepreneurship.

Like corporate entrepreneurship, innovation, risk, and proactiveness play a prominent role in defining dimensions of public sector entrepreneurship. However, in the public sector these dimensions typically encompass novel approaches, such as adjustments to organizational structure, more efficient business processes, and better use

of technology. The following sections cover current scholarly research on risk, proactivity, and innovation as dimensions of public sector entrepreneurship.

Broadly defined as ‘creating something new,’ innovation is the single most common theme in discussions of corporate organizational growth and entrepreneurship—a mechanism that facilitates firm survival in competitive environments (Kearney, Hisrich, and Roche 2008, 297). Although growth is not a goal in the public sector, evidence nonetheless clearly shows that innovative activities and approaches to problem solving do occur. Early conceptions of public sector innovation explored linkages between the organization and external political influence. Peled (2001) defines public innovation as, “a political process that propels organizations to launch a significant new public project that alters rules, roles, procedures, and structures that are related to the communication and exchange of information within the organization and between the organization and its surrounding environment.” Wilson (1989) notes that in public organizations, where sense of mission is strong and there is substantial support from political superiors, resistance to innovation is high.

Sanford Borins of the University of Toronto finds that opportunities to innovate do arise in the public sector, but innovation focuses less on commercial considerations than in the private sector, and is more likely to encompass process improvements, reducing red tape, and increasing overall efficiency. Borins (2002, 468) states, “...the level of organizational commitment is believed to be lower in the public sector, largely because of the inflexibility of personnel procedures and the weak link between performance and rewards.” Borins (1998) demonstrates higher levels of innovation occur

in government agencies with diverse programs and services. He also provides evidence demonstrating that incentives over regulation can influence the level of innovation.

Innovation in public agencies is not limited to managerial leadership. Borins (1998) finds that in the public sector, front-line employees predominately initiate innovative activities. In a review of “Innovation Awards” (agency sponsored ideas festivals), Borins finds that 50% of winning ideas come from front-line workers and middle managers, 25% from top-level management, and 20% from politicians external to the agency (Borins 2001, 312). Teske and Schneider (1994) show similar results in their survey of city managers. The authors find that 75% of the surveyed respondents report that ideas originate from within the public agency, and not political outsiders (Teske and Schneider 1994, 337). These studies, however, generally lack a deeper analysis of the innovative activities’ effect on organizational performance. There tends to be an underlying assumption that all innovation is good.

Barriers to innovation arise from within the organization and include: hostile attitudes, turf fights, coordinating difficulties, difficulty in introducing new technology, middle management resistance, and logistical problems (Kearney, Hisrich, and Roche 2009, 301). External obstacles to public sector innovation include inadequate funding, legal or statutory constraints, and political opposition (Borins 1998; Borins 2001; Kearney, Hisrich, and Roche 2009, 301; Kearney, Hisrich, and Roche 2008).

Studies on corporate entrepreneurship typically define risk as an organizations’ willingness to pursue an opportunity, which has some likelihood of failure. In the public sector, however, risk is an asymmetric factor. For example, if an employee takes a risk

and fails, there will likely be punitive actions. However, should that same endeavor succeed, there is unlikely to be any sort of reward. Thus, it is clear that in the public sector award and incentive do not encourage risk-taking behavior. The ability to take risk is also tempered through organizational, environmental, and structural constraints, such as political mandates and requirements that prevent the independent pursuit of activities outside of the agencies' core mission (J. Wilson 1989).

Some scholars, however, have taken alternative views on risk in government. Bozeman and Kingsley (1998) note that being entrepreneurial does not necessarily entail additional risk, stating, "...entrepreneurs do not seek risk, they seek opportunities" (Bozeman and Kingsley 1998, 110). Surveying 265 middle and top-level managers to determine levels of risk aversion in the public sector compared to the private sector, the authors hypothesize that organizations with more red tape, weak links between performance and awards, and a high degree of interaction with elected officials, will tend to be more risk adverse (Bozeman and Kingsley 1998, 109). Surprisingly, the authors find that sector is not a significant factor in an organization's "risk culture." The most significant factor effecting public risk culture, according to Bozeman and Kingsley, is external political exposure (Bozeman and Kingsley 1998, 113). Despite Bozeman and Kingsley's findings, the authors do acknowledge some possible methodological flaws—specifically the use of perceptual survey data, which can be inherently subject to participant bias.

The concept of "opportunity" in Bozeman's study is interesting to consider within the public space. One would assume that a government agency employee pursuing an

opportunity is at the same time not pursuing their core task, and thus undertaking some degree of risk. The reality is that employees seek opportunity all the time. It may be an opportunity to increase information sharing with other business units, or an opportunity to increase their position. The point, however, is that risk is situation dependent, which proves problematic for developing a theory of public sector entrepreneurship.

The emergence of quasi-public organizations has reinvigorated debate on government risk (Moe 2001; Stanton 2009). Some scholars claim that an unacceptable tolerance of risk in quasi-public organizations, such as Fannie Mae and Freddie Mac, helped lead to the 2008 financial crisis (Moulton and Wise 2010; Stanton 2009). Others disagree. In the mid-nineties, the CEO of In-Q-Tel—a CIA investment arm—states, “The best thing about [In-Q-Tel], to me, is that it’s risky. The CIA and the rest of the government need to catch the entrepreneurial, risk-taking spirit that’s driving Silicon Valley technology revolution. The CIA’s new venture may fall flat, but so what. Washington has been a zero-defect culture for too long. If we want a CIA that performs better, we’ll need to take more risks—and give our government freedom to fail” (Moe 2001, 305).

From the literature on risk-aversion in the public sector, Inger Boyett provides some of the most intriguing research. Boyett argues that while entrepreneurial activity in the public sector may involve risk, the risk may not necessarily have a financial basis (Boyett 1997; Sadler 2000, 38). This implies that risk-taking behaviors may not be as strongly correlated with profit motivation as previously thought. According to Boyett, this allows the public sector entrepreneur to be less risk adverse than its private sector

counterpart. This raises interesting possibilities for incorporating concepts such as personal, political, or social capital within the risk dimension, and lends additional credibility to the public service motivation literature. One aspect not entirely addressed in Boyett's study is the type of change involved. That is, large-scale change assumes a great deal more risk than small-scale change. This seems to be an overall problem within the literature on public sector entrepreneurship—the lack of identifying and categorizing the scope and type of entrepreneurial change.

According to Kearny, Hirsch, and Roche (2009, 304), "...proactiveness is concerned with implementation, which is doing what is required in order to bring the entrepreneurial concept to fruition." Proactiveness in corporate organizations requires a high level of flexibility, as well as, a willingness to take responsibility for future failures. Individuals are proactive when they, "...scan for opportunities, show initiative, take action, and persevere until they reach closure by bringing about change" (Bateman and Crant 1993, 105). Morris and Jones define proactivity in the public sector as, "...an action-orientation and an emphasis on anticipating, and preventing public sector problems before they occur. This action-orientation includes creative interpretation of rules, skills at networking and leveraging resources, and a high level of persistence and patience in affecting change" (M. H. Morris and Jones 1999, 76).

Having a proactive orientation does not come easy in complex bureaucracies. For example, many of the same constraints that limit innovation and promote risk-aversion, such as external political influence lack of budgetary autonomy, also work to undermine proactiveness. Sense of mission also works against establishing a proactive orientation

towards entrepreneurship. A strong sense of mission is likely to produce a culture that is resistant to new tasks, as well as, a culture that is likely to continually “miss the boat” in terms of identifying opportunities (M. Morris and Kuratko 2002; J. Wilson 1989, 109). Since proactivity results in deviation from the norm, it is unlikely that entrenched bureaucratic public agencies (agencies with a strong sense of mission) are likely to embrace proactive orientations.

Some research indicates that front-line employees in public organizations do, from time to time, recognize a need for change, and work to implement that change (Teske and Schneider 1994; Sadler 2000; Hage and Aiken 1969). This discovery is typically through a complex process of organizational learning. Specialization has a positive impact on proactivity, but only when groups of individuals with specialized knowledge interact. These interactions increase the likelihood of identifying an opportunity (Moon 1999, 40). Bardach notes that, “because they work across agency and program lines, collaborators benefit from having the discretion to solve public problems in creative ways—for example, by sharing critical information and resources with one another” (Eugene Bardach 2001, 149). Thus, in rigid hierarchical organization, interagency collaboration helps to promote proactiveness by bringing people and ideas together.

Summary

Theoretical perspectives of public administration created a long tradition of bias and preconceptions of how government is ‘supposed to work.’ External political pressure, no budgetary autonomy, and the lack of market exposure produces an organizational

environment replete with structural complexity, red tape, weak links between performance and incentives, and slow performance. As the previous sections have shown, this led to divergences in management and public administration literature. From this divergence, two competing paradigms of public management emerge—the constitutional management paradigm and the entrepreneurial management paradigm (Moe 2001, 305). The prior places the basis for public administration in public law and political accountability (Dahl 1947; Dahl and Lindblom 1953; Lindblom 2001), while the later holds that public and private organizations are fundamentally alike and subject to the same economic behavioral norms (Teske and Schneider 1994; Schneider, Teske, and Minstrom 1995).

This split has spurred a burgeoning foundation of literature on understanding the distinctions between public and private organizations. In terms of management, although public and private organizations operate within different environments and are subject to different stakeholders (shareholders versus citizens), there is significant evidence indicating that attributes of public management are quite similar to attributes of private organizations—especially in terms of organizational commitment and mission. These similarities open the door to consider creative management strategies from private sector perspectives. For example, using an entrepreneurial approach to public management holds the possibility to increase performance through flexibility.

However, theory does not yet consistently reconcile with the realities of public management, partly due to inadequate and underdeveloped approaches to management within the public sector. The previous literature review highlights the serious lack of

strong empirical analysis to test these distinctions from an organizational approach, within the Federal government. Most studies are theory-based or take an individual perspective—relying on sets of key interviews. Other studies fail to recognize the importance of integrating theory from private enterprise—such as the competing values framework and its multidimensional approaches. Finally, very few studies seek greater generalizability in the relationships between organizational environments and entrepreneurial norms in the public sector. This study attempts to help address these gaps by taking an organizational approach to perceptions of entrepreneurial behavior across the entire Federal government.

CHAPTER THREE: THEORETICAL FRAMEWORK AND HYPOTHESES

The previous chapter delineated major differences between public and private literature on entrepreneurial management—specifically detailing the organizational antecedents to performance within public and private sector management literature. These differences highlight the general agreement among scholars that there are practical limitations and applicability to the transference of public sector concepts to public management, such as budget maximization rather than optimization, multiple external constituencies, and inflexible objects (Drucker 1985). This chapter reconciles organizational approaches, from both a private and public sector perspective, into one theoretical framework.

Scholarship on public agencies' organizational performance generally accepts organizational structure, culture, and environment as the primary macro-level antecedents to performance (Y. Kim 2010; Meynhardt and Diefenbach 2012). Of course, there are variations and alternatives to this framework. Robertson and Seneviratne (1995) show that organizational arrangements (structure), social factors (culture), technology, and physical work setting (environment) are antecedents to organizational adoption of change. Morris et al. (2007) use organizational structure, leadership style, organizational control systems, and the organization's external environment as predictors of performance. Rainey (1983) hypothesize that formalization, personnel rules and award

expectations, motivation and involvement, organizational goal clarity, and work task characteristics are all predictors of performance. Sadler (2000) finds that specialized training, structure, red tape, goal clarity, resources, political influence, and size were all factors that characterize an entrepreneurial public organization. Brewer and Selden (2000) use a two-factor approach: agency-level factors and individual- level factors. Agency-level encompass culture, capacity, leadership, red tape, and organizational support for the National Performance Review, while individual-level factors encompass structure of work, motivation, and individual level performance. Finally, Gormley and Balla (2004) distill variation in government agency performance among four factors: tasks, relationships, political support, and leadership.

An Integrative Framework

The organizational approach in this study adopts culture, environment, and structure as the primary underlying antecedents to perceptions of entrepreneurial behavior in the Federal sector, as defined as a function of organizational risk, innovation, and proactivity. Figure 1 illustrates this general relationship.

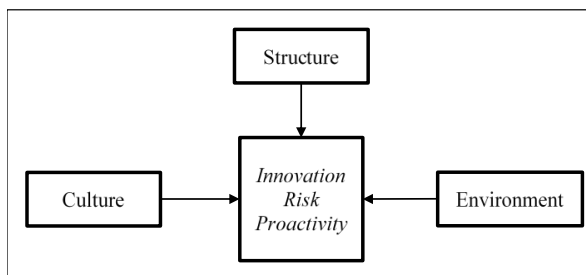


Figure 1: Organizational Relationship to Entrepreneurial Factors

To summarize, structure is the hierarchical management designs and formalized procedures and lines of authority that makes up an organization. In the public sector, complex hierarchy and greater formalization leads to more red tape and reduces the probability of innovative behaviors and undermines risk-taking behaviors (Covin and Slevin 1991; Hage and Aiken 1970; Bozeman and Kingsley 1998; Bozeman 1993). Scholars believe greater centralization discourages risk-taking behavior, because top-level management is not equipped with necessary “resources, knowledge, or discretionary authority to deal with potential risks in their actions” (Moon 1999, 34). Finally, greater flexibility in managerial autonomy, through increased organizational commitment, stimulates risk-taking, proactiveness, and innovative behaviors (Ramamurti 1986).

In government, organizational environment refers to the external political pressures the organization may face. Kim (2010, 792) notes that, “The operating external environment of an organization influences the organization’s involvement and capacity to engage in risky, innovative, and proactive tasks.” Moon (1999) shows that higher degrees of political pressure can limit the exercise of entrepreneurial activity. Borins (1998) finds that political involvement affected entrepreneurial dimensions differently—positively impacting innovativeness and negatively affecting risk-taking and proactiveness.

An organization’s cultural antecedents to entrepreneurial activity are the characteristics that represent norms, values, and beliefs—how the organization understands, maintains, and develops a spirit of innovation, risk-taking, and proactiveness. Accountability and goal clarity are the two most cited organizational attributes. Accountability works to lower transaction costs, facilitates flexibility in

decisions, and enables managers to search for alternative solutions (Y. Kim 2010, 791). Studies relating to entrepreneurship in the public sector find that increased goal clarity can lead to structural complexity (Jennings and Lumpkin 1989; Chun and Rainey 2005). However, although ambiguous goals may positively influence risk-taking and innovation (Sadler 2000), it negatively affects proactiveness (Y. Kim 2010, 790). Inconsistent missions and goals do not provide clear direction, which leads to confusion.

To operationalize this framework, this study uses an adaptation of the Denison Organizational Culture Model (DOCM). The DOCM is an organizational assessment tool that provides a benchmark in four key areas related to performance: Mission, Consistency, Adaptability, and Involvement. Although the DOCM measures “organizational culture,” a careful reading of the measures indicate that it provides reflexive measures of structure, culture, and environment. That is, DOCM’s survey items address factors associated with structure, culture, and environment. Figure 2 shows how the DOCM generically relates to the underlying theoretical framework.

This research utilizes DOCM because of its dimensional reflective construct of organizational culture, environment, and structure. Typically, measurement instruments range from formative to reflective. A formative perspective views the measurement as an “overt” manifestation of an underlying set of factors, while a reflexive perspective views the measurement as an underlying “unobservable” factor, whose variations are observable in reflected items. Whether formative or reflective, different instruments typically adopt either a dimensional approach or a typological approach. Jung et al. (2009, 1090) state that, “Dimensional approaches aim to assess the presence and relative

strength of cultural dimensions in a specific setting.” This dimensional approach provides the benefit of utilizing pre-defined and psychometrically validated measures, and allows this research to focus on specific variables relevant to public sector organizations.

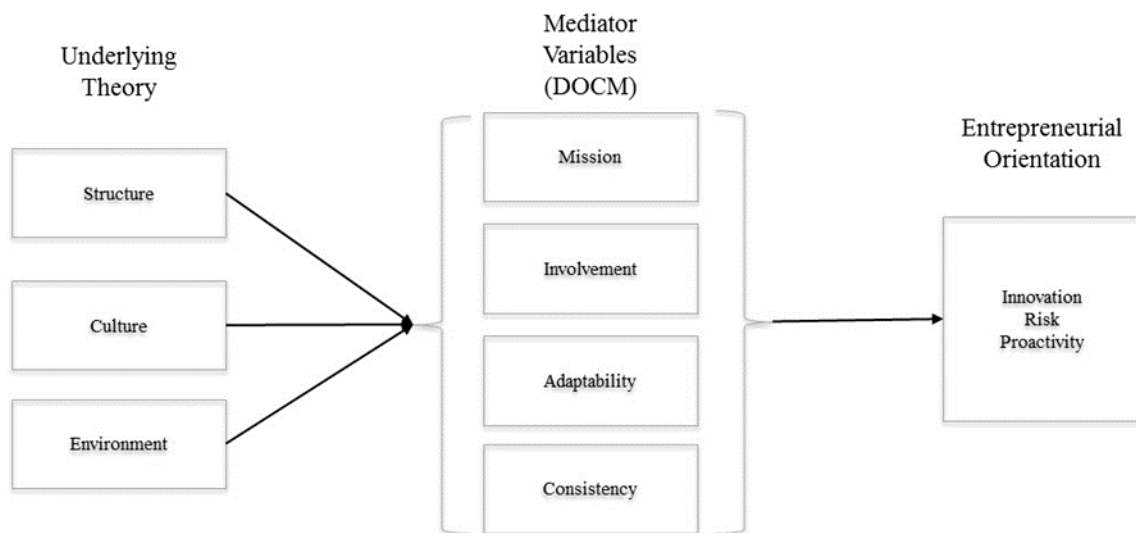


Figure 2: Relationship between Underlying Framework and DOCM

This research uses an adapted version of the Hughes and Morgan (2007) entrepreneurial orientation instrument to re-construct the entrepreneurial orientation scales. The Hughes and Morgan model is unique, in that it independently considers each dimension’s effect on performance (reflective), rather than utilizing a composite index comprised of each of the dimensions (formative) (Miller 1983; Covin and Wales 2012). Hughes and Morgan base their model primarily on previous research by Lumpkin and Dess (1996), who assert that organizations operationalize entrepreneurial orientation through risk-taking, proactiveness, innovation, autonomy, and competitive

aggressiveness, where each dimension of entrepreneurial orientation may vary independently (Lumpkin and Dess 1996; Hughes and Morgan 2007; Covin and Wales 2012). Thus, conditions in one scenario may lead to favorable outcomes while conditions under different circumstances may lead to unfavorable outcomes.

The Hughes and Morgan model uses the following definitions of risk-taking, innovativeness, proactiveness, and autonomy in their construction of entrepreneurial orientation (Hughes and Morgan 2007; Lumpkin and Dess 1996). *Risk-taking* represents the acceptance of inherent risk in undertaking new activity, and is typically measured as a commitment of resources to an activity with uncertain outcomes. *Innovativeness* captures the inclination towards supporting creative and new processes, and a commitment to research and development. *Proactiveness* represents the forward-looking perspective of firm leadership, and the ability to predict and anticipate new opportunities. Finally, *Autonomy* describes the authority given to an individual, team, or organizational unit to develop business concepts and carry them through to completion. This research drops the competitive aggressiveness dimension, primarily because government agencies do not generally engage in competitive activity, thus greatly diminishing its relevancy to this research (Downs 1967).

Ultimately, this theoretical framework holds that individual respondents within the Federal sector will perceive him or herself to be more proactive and/or innovative if certain organizational elements are present.

The DOCM and Primary Hypotheses

DOCM is a 60-item survey, which assesses four organizational cultural traits: involvement, consistency, adaptability, and mission. The survey presumes that all organizations have certain social processes and relationships, which have a consistent correlation with organizational performance and effectiveness, and are observable through latent variables (Denison 1984, 11). This study uses the DOCM because of its validity measures against other organizational instruments, as well as its adaptability and its prior usage in studying public sector organizations (LaCasse 2010; Nier 2009; Denison and Mishra 1995). Finally, the DOCM is an attractive option because it grants researchers an open license for non-commercial research purposes. See, Appendix 1 for a copy of the signed “Terms of Use” agreement for researchers.

The 60-item DOCM assesses four organizational traits (involvement, consistency, adaptability, and mission), each having three component indexes measured by survey items on a five-point Likert scale. The first scale, *involvement*, assesses empowerment, team orientation, and capability development. Literature indicates that organizations with empowered, engaged, and developed employees working in team environments are more effective than those who do not (Lawler 1980; Hildreth 2004; Small 2009). The second scale assesses *consistency* through an index of core values, agreement, and coordination and integration. Generally, organizations with higher levels of consistency and integration are more effective at performing core tasks (Schein 2004; Saffold III 1988). DOCM assesses the third scale, *adaptability*, through an index of creating change, customer focus, and organizational learning. Highly adaptive organizations are able to effectively master meeting external demand, with internal change (Senge 2006; Katz and

Kahn 1966). Finally, DOCM treats the fourth scale, *mission*, through an index based on strategic direction and intent, goals and objectives, and vision. Organizations with a clear sense of purpose and vision for the future have a strong mission, which is positively correlated with performance (Mintzberg 1973; Selznick 1949).

Involvement

This dimension is reflective of the structural and environmental elements within the theoretical framework—namely, autonomy, participatory decision-making, collaboration, and formalization.

Scholarship demonstrates that inflexible personnel procedures and weak links between performance and rewards lead to lower organizational commitment (Borins 2002). Additionally, greater organizational commitment in public service allows a greater capacity to operate under autonomous conditions (Denison and Mishra 1995, 214).

Research also suggests that collaborative and involved organizational environments result in greater public sector innovation activities (Borins 1998). Thus, the first hypothesis suggests that high levels of organizational involvement create a greater sense of organizational commitment and ownership, and will have a positive relationship with perceptions of entrepreneurial orientation traits.

H1: The level of organizational involvement is positively related to perceptions of entrepreneurial orientations.

Mission

This dimension is reflective of the cultural and environmental elements of the theoretical framework. Researchers disagree on the effects of goal and mission ambiguity

within the public sector. On one hand, clear goals and objectives reflect stable organizational cultures and environments, which are unlikely to be proactive or engage in risk-taking behaviors that would jeopardize mission success (Denison and Mishra 1995, 216). According to Wilson (1989), public organizations, where a sense of mission is strong and there is substantial support from political superiors, resistance to innovation is high and members will “miss the boat” in terms of being alert (proactive) to new opportunities (M. Morris and Kuratko 2002; J. Wilson 1989, 109). On the contrary, other research suggests that for a risk culture to survive in public organizations, there must be clearly defined goals and objectives (Bozeman and Kingsley 1998, 115). This sense of goal clarity provides organizational members the boundaries and acceptable risk tolerances.

Conversely, a lack of clear goals and mission may present organizational members with greater room to search for opportunity, and in this case, goal ambiguity may lead to greater entrepreneurial activity—specifically innovation. For example, if an agency has an ambiguous mission such as, “reduce poverty,” then innovation and creativity may be necessary components to mission success. However, some suggest that while an ambiguous mission would stimulate innovation, it would have a negative effect on proactiveness. Members would lack an overall sense of direction (Y. Kim 2010, 791). Therefore, this study suggests that a strong sense of mission will stifle entrepreneurial activity.

H2: A strong sense of mission is negatively correlated to perceptions of entrepreneurial activity.

Adaptability

Organizational adaptability is reflective of structure and culture within the theoretical framework. Adaptability implies structural and managerial flexibility, as well as a culture with greater risk-taking propensities. An adaptable public organization is one that is likely to have less red tape and less rigid procedures. Generally, greater organizational adaptability promotes greater entrepreneurial activity among members (Bozeman and Kingsley 1998).

In addition to structure and managerial flexibility, adaptable organizations have performance-based reward systems that encourage entrepreneurial activity. Within the public sector, this would entail employee recognition, flexibility over personnel decisions, and adequate training opportunities to promote work satisfaction and motivation (Rainey and Bozeman 2000). In the public sector this translates to higher service ethics among members, such as “involvement with important public policies, self-sacrifice, responsibility, and integrity” (Rainey and Bozeman 2000, 460).

The third hypothesis suggests that agencies with adaptable structure and cultures are better able to affect institutional change through the search for innovative and creative solutions.

H3: An adaptable organization will be positively correlated to perceptions of entrepreneurial activity.

Consistency

Organizational consistency is reflective of structure and culture within the theoretical framework. Consistent organizational structures emphasize stability and

direction through formal rules and procedures, which allow the agency to perform core tasks effectively. This is likely to increase red tape, structural complexity, and specific organizational goals and objectives.

The fourth hypothesis suggests that a consistent organizational structure and culture, is orientated towards stability and direction, rather than adaptability and change. Therefore a consistent organization will be less likely to pursue creative and innovative solutions (Buchanan 1975; Downs 1967; Golden 2000; Moon 1999).

H4: A consistent organization will be negatively correlated perceptions of entrepreneurial activity.

Competing Values Dimensions: Organizational Environment and Control

The next set of hypotheses considers the interactions of the organizational traits, which according to the DOCM represent two separate organizational dimensions. These dimensions are consistent with Quinn and Rohrbaugh's (1983) competing values framework of organizational effectiveness, which juxtaposes organizational control and organizational environment on two spatial dimensions. These interactions are reflective of organizational environment within this study's underlying theoretical framework.

The DOCM places consistency, involvement, mission, and adaptability within two primary dimensions: external versus internal orientation, and flexible versus stable orientation. DOCM orients involvement and consistency towards internal integration, and mission and adaptability towards external adaptation. Conceptually, involvement and adaptability are traits consistent with an organization's capacity to change, while mission and consistency contribute to an organization's ability to maintain stability and direction

(Denison and Mishra 1995, 216). Therefore, this research expects the following relationships, based on the prior hypotheses for Mission, Adaptability, Consistency, and Involvement:

H5: Externally oriented will be positively correlated to perceptions of entrepreneurial activity.

H6: Internally committed will be negatively correlated to entrepreneurial orientation traits.

H7: Stable organizations will be negatively correlated to perceptions of entrepreneurial activity.

H8: Flexible organizations will be positively correlated to perceptions of entrepreneurial activity.

CHAPTER FOUR: DATA COLLECTION AND METHODOLOGY

Currently, Federal agencies limit access to employees for primary research purposes, which help reduce the administrative burden on Federal employees. Although some agencies do permit external surveys, the internal review process is lengthy, and in most cases can take multiple years to obtain the necessary approvals.

To mitigate these barriers, this study utilizes an existing dataset comprised of the 2012 Federal Employee Viewpoint Survey (FEVS). The following sections describe FEVS in detail, as well as the process used to construct the organizational and entrepreneurial orientation factors, based on the DOCM and the Hughes and Morgan (2007) entrepreneurial orientation constructs.

Data Collection and Survey Instruments

The Chief Human Capital Officers Act of 2002 requires Federal agencies to measure and meet standards set forth in the Human Capital Assessment and Accountability Framework, and FEVS is one survey Federal organizations utilize to meet these requirements. The FEVS is an annual survey conducted by the Office of Personnel Management (OPM), which seeks to measure leadership and knowledge management, results-oriented performance culture, talent management, and job satisfaction. OPM designed FEVS—a perception-based survey—to provide agencies with information important to driving strategic change, including snapshots of employee satisfaction,

commitment, and engagement (“2012 Federal Employee Viewpoint Survey Results Technical Report” 2013, 1).

Survey Population Frame and Stratification Variables

The survey population includes large departments and agencies, as well as small and independent agencies. Total, these agencies comprise approximately 97 percent of the executive branch workforce. See Appendix 2 for a complete list of agencies. The survey population design ensures adequate representation across agency, sub-agency, and supervisory status for the Federal workforce.

A survey population frame is a list of all the eligible respondents for a given survey. The population frame for FEVS is all full-time and part-time permanent Federal employees who are members of the Federal agencies participating in the survey. OPM stratifies the survey population into 1,754 subgroups from two main variables. The first grouping variable is the organization’s sub-group (i.e., bureau or office). The second grouping variable is the respondent’s supervisory status, which consists of three categories: “non-supervisor”, “supervisor,” and “executive.”

The total survey population size for 2012 is 1,622,375 employees. According to OPM, “...this size was more than sufficient to ensure a 95 percent chance that the true population value would be between plus or minus one percent of any estimated percentage for the total Federal workforce” (“2012 Federal Employee Viewpoint Survey Results Technical Report” 2013, 5). A review of previous surveys suggests 5 percent is an acceptable margin of error level (Jung et al. 2009; James E. Bartlett II, Joe W. Kotrlik,

and Chadwick C. Higgins 2001). The FEVS margin of error is well below the 5 percent threshold.

Survey Mode and Content

OPM administers the FEVS primary using a web-based, self-administered survey. OPM administers less than 1 percent of the surveys in a form other than web-based, such as a paper format. Although employing multiple survey modes can affect response rates and bias, OPM judges the overall modal effect as non-consequential. The Department of Veteran Affairs, the Department of Transportation's Federal Aviation Administration, and two minor sub-agencies within the Office of the Secretary of Defense conducted a sample rather than a census.

FEVS consists of 98 survey items, comprised of 14 demographic questions and 84 items that address leadership and knowledge management, results-oriented performance culture, and talent management. The FEVS categorizes the 84 items into personal work experience, opinions regarding work unit performance, agency policy and practices related to job performance, perceptions of the employees' supervisors and team leaders, perceptions of the employees' senior managers, employee satisfaction, and work/life balance. Each non-demographic survey item utilizes a five-point Likert-scale, ranging from A) "Strongly Disagree" to "Strongly Agree", B) "Very Dissatisfied" to "Very Satisfied," and D) "Very Poor" to "Very Good."

The demographic variables include location (headquarters/field), supervisory status, gender, race, pay category, Federal employment tenure, and agency tenure. This

study includes supervisory status, gender, race, pay category, and Federal employee tenure as demographic variables.

Response Rate and Data Weighting

OPM's formula for calculating the survey response rate (RR) is the total eligible respondents (ER), divided by the eligible respondents plus the eligible non-respondents (ENR):

$$RR = \frac{ER}{(ER + ENR)}$$

Equation 1: Response Rate Formula

The total 2012 FEVS response rate is 46%. Prior studies indicate that adequate response rates vary between 23% and 50% (LaCasse 2010; Y. Kim 2007; Nier 2009).

Due to bias primarily from non-response, OPM weights each respondent's survey to better infer perceptions of the total Federal employee population. Certain demographic groups tend to be over- or under-represented in the un-weighted data, thus gender, race, age, supervisory status, and agency size are factors in the respondents' weights.

OPM constructs the survey weights through a three-step process. First, OPM computes a base weight for each respondent, which is equal to the reciprocal of the employee's probability of selection. Second, OPM increases each base weight to account for Federal employees who did not complete or return the survey. This process creates the non-response adjusted weights. Finally, OPM modifies the non-response adjusted

weights through a raking ratio estimation process. Raking adjusts the sampling weights of the cases in the sample population so that the marginal totals of the adjusted weights are consistent with the corresponding totals for the population (Kalton 1983). The process is iterative, and continues until the population achieves convergence.

The following section describes the framework and process this research uses to develop the primary organizational explanatory variables, using the FEVS.

Primary Explanatory Variables

The theoretical framework this study uses relies on a set of latent constructs developed through the DOCM. To approximate the DOCM latent constructs, this study uses a structural equation modeling (SEM) approach to test and confirm the validity of scale construction using FEVS, which does not directly measure DOCM items. SEM is a flexible set of statistical tools that allows researchers to test substantive theory with empirical evidence. The primary advantage of using SEM, is that it can be used to study the correlations and relationships among latent constructs that are theorized by multiple measures, which are provided *a priori* (Lei and Wu 2007). In this study, the DOCM provides the theoretical *a priori* measurements to construct Mission, Adaptability, Involvement, and Consistency—the primary explanatory variables.

Developing and testing the theoretical latent variables involves a two-step process. The first step involves model specification and data collection. This process develops the underlying theoretical measures by using a linguistic analytical approach. Because the FEVS does not directly measure the DOCM constructs, a comparison of

each FEVS to DOCM is necessary to determine similarity and inclusion into the final theoretical construct.

The second step involves model estimation, evaluation, and modification. Using SEM methods, confirmatory factor analysis (CFA) tests the theorized relationships for validity and fit. That is, how well the observed variables account for the variance in the underlying data and reflect the theoretical latent construct. This study uses CFA, as opposed to exploratory factor analysis (EFA), because the latent constructs are derived from *a priori* theory—the DOCM (Lei and Wu 2007, 34). For example, whereas EFA allows all observed items to load on all factors, CFA assumes the number of observed items on each factor (latent variable) is already known.

Goodness-of-fit tests determine whether each latent construct exhibits an acceptable fit to the data. If needed, modifications to the models are made. Finally, each latent model is transformed into a single construct by using a process to reduce the dimensionality within a given set of data by combining inter-correlated variables. The factor scores are computed with a linear regression by using the mean vector and variance matrix from the fitted model. The composite factor scores approximate a continuous variable.

Model Specification and Data Collection

Model specification is based on sound theory derived through literature and estimates. Although the FEVS does not measure the DOCM directly, this study utilizes a computational linguistics approach to approximate the DOCM scales Consistency, Mission, Adaptability, and Involvement. Approximating the DOCM scales involves a

three-step process of coding, comparing, and adjusting results. Pollack (2012, xiii) demonstrates that scale construction using latent semantic analysis, a process similar to the method this study uses, creates patterns of convergent validity and evidence of substantial construct validity. Further, Sherman (2006) demonstrates a valid model of scale construction based on the meaning associations among latent and observed variables.

In the first step, each DOCM item is loaded into QDA Miner—a text analysis suite—and coded by its underlying scale. For example, QDA Miner codes the following items as relating to the mission scale: *There is a long-term purpose and direction; Our strategy leads other organizations to change the way they compete in the industry; There is a clear mission that gives meaning and direction to our work; and, There is a clear strategy for the future.* The coded items represent the final corpus of text that are compared to the FEVS items for similar keyword frequency and meaning. Appendix 3 contains a list of each scale and its corresponding survey item. Next, each FEVS item is loaded into QDA Miner, but is not coded.

In step two, a co-occurrence matrix is created with QDA Miner to compare the similarity of the coded DOCM items to the non-coded FEVS items. Each FEVS item is given a score based on its similarity to the DOCM coded scales. The similarity scores range from 0 to 1, where 0 indicates no similarities and 1 indicates the items are identical. The minimum cut-off value for item selection was set at 0.1.

In step three, a manual review of each item was conducted to correct any errors generated from the automatic selection in step two. Errors arose due to differences

between actual meaning and keyword frequency. While some FEVS items had very clear similarities to the DOCM scales, others were clearly less applicable. For example, FEVS question 2, “I have enough information to do my job well,” received a similarity score of .44 to the involvement score, matching closest to the DOCM question, “Information is widely shared so that everyone can get the information he or she needs when it's needed.” On the other hand, FEVS question 63, “How satisfied are you with your involvement in decisions that affect your work,” earned a high similarity score on the adaptability scale, but is clearly better suited for placement in the involvement scale. Although the suggested scales required some adjustments, the final scales retained approximately 73% of the recommended groupings. Table 1 provides a summary of each scale and the selected FEVs items. These selected items provide the hypothesized structure for each of the latent variables (mission, adaptability, involvement, and consistency). Next, the hypothesized latent structures are tested and validated using confirmatory factor analysis (CFA) and structural equation modeling (SEM).

Table 1: DOCM Scales and Selected FEVS Items

Organizational Traits	FEVS Questions
Adaptability: Reflective of organizational structure and culture, comprised of change, flexibility, and organizational learning	<ul style="list-style-type: none"> • I am given a real opportunity to improve my skills in my organization • How satisfied are you with your opportunity to get a better job in your organization? • The skill level in my work unit has improved in the past year • In my work unit, steps are taken to deal with a poor performer who cannot or will not improve • Managers/supervisors/team leaders work well with employees of different backgrounds • My supervisor supports my need to balance work and other

	<p>life issues</p> <ul style="list-style-type: none"> • Senior leaders demonstrate support for Work/Life programs • I feel encouraged to come up with new and better ways of doing things
<p>Mission:</p> <p>Reflective of cultural and environmental theoretical framework, and comprised of goal and objectives, strategic intent, and vision</p>	<ul style="list-style-type: none"> • In my organization, leaders generate high levels of motivation and commitment in the workforce • I know what is expected of me on the job • I know how my work relates to the agency's goals and priorities • How would you rate the overall quality of work done by your work unit? • My agency is successful at accomplishing its mission • Managers communicate the goals and priorities of the organization • Managers review and evaluate the organization's progress toward meeting its goals and objectives • How satisfied are you with the information you receive from management on what's going on in your organization?
<p>Consistency</p> <p>Reflective of structure and culture within the theoretical framework, and comprised of core values, agreement, and coordination and integration</p>	<ul style="list-style-type: none"> • Prohibited Personnel Practices (for example, illegally discriminating for or against any employee/applicant, obstructing a person's right to compete for employment, knowingly violating veterans' preference requirements) are not tolerated • My talents are used well in the workplace • I can disclose a suspected violation of any law, rule or regulation without fear of reprisal • Promotions in my work unit are based on merit • Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring) • Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated • My organization's leaders maintain high standards of honesty and integrity • Managers promote communication among different work units (for example, about projects, goals, needed resources) • Managers support collaboration across work units to accomplish work objectives • I have a high level of respect for my organization's senior leaders • How satisfied are you with the policies and practices of your senior leaders?

<p>Involvement:</p> <p>Reflective of structural and environmental elements, comprised of empowerment, team orientation, and capability development</p>	<ul style="list-style-type: none"> • How satisfied are you with your involvement in decisions that affect your work? • I have enough information to do my job well • My work gives me a feeling of personal accomplishment • Awards in my work unit depend on how well employees perform their jobs • Employees in my work unit share job knowledge with each other • Supervisors/team leaders in my work unit support employee development • Employees have a feeling of personal empowerment with respect to work processes • Discussions with my supervisor/team leader about my performance are worthwhile • My work unit is able to recruit people with the right skills • The people I work with cooperate to get the job done • In my work unit, differences in performance are recognized in a meaningful way • In my most recent performance appraisal, I understood what I had to do to be rated at different performance levels (for example, Fully Successful, Outstanding)
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Model Estimation, Evaluation, and Modification

As previously discussed, items from the FEVS were assembled using linguistic analysis to approximate the DOCM latent constructs. This provided the hypothesized construct for each of the latent variables.

Each of the items within the latent variables (Mission, Adaptability, Consistency, and Involvement) is first tested using Cronbach's alpha-test for validity, the items within the scale. As a general rule, alpha-scores above .80 are considered acceptable. The latent variables representing *Mission, Adaptability, Involvement, and Consistency* all received

alpha-scores above .80, indicating good internal validity. See Table 2 for Cronbach's Alpha Scores.

Table 2: Cronbach's Alpha Scores (Standardized)

	Scale Reliability Coef.	Items
Adaptability	.88	8
Consistency	.93	11
Mission	.89	8
Involvement	.91	12

Based on the specified model, a path analysis is conducted for each latent variable. For example, Figure 3 depicts boxes that contain the observed variable and circles that contain the unobserved, or latent, variable. The arrows hypothesize the relationship. In Figure 3, the arrows represent the latent variable's effect on each of the observed variables. The disturbance (error) terms are represented by the notional *e.x*, with a path to the observed variable. Paths that are not specified (i.e., between the disturbance terms), are assumed to be constrained at 0. For each latent variable—Mission, Adaptability, Involvement, and Consistency— no covariance between the error terms is initially assumed.

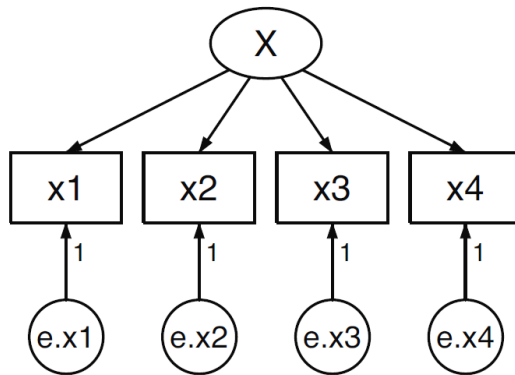


Figure 3: Notional Path Diagram

A maximum likelihood estimator is used to determine the model estimation. Because of the sufficiently large sample size, normality assumptions can be relaxed. The unique feature of SEM is that after estimating the model, adjustments can be made between the correlations of the observed data to account for the reality of the model. These adjustments help provide a better fit to the data. An analysis of the omitted paths, known as a *modification index*, is used to make adjusts to the model.

Goodness-of-fit (GOF) measures provide an indication of how well the observed data fit the latent construct. Essentially, the magnitude of discrepancy between the sample covariance matrix and the covariance matrix implied by the model with parameter estimates reflects the models' GOF. This study uses three primary GOF statistics: the standardized root mean square residual (SRMR), the root mean square error of approximation (RMSEA), and the comparative fit index. The SRMR is the square-root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. SRMR values range from 0 to 1, with lower values indicating a better fit. Well-fitting models typically have values less than .05 (Hooper,

Coughlan, and Mullen 2008). The RMSEA provides information as to how well the chosen parameter estimates fit the populations' covariance matrix. RMSEA is sensitive to models with fewer parameter estimates, and ranges in value from 0 to 1. Values below .06 indicate a good fit. Finally, the CFI takes into account sample size, and compares the sample covariance matrix with the null model (latent variables assumed uncorrelated). The values range from 0 to 1, with values greater than .90 indicating a good fit.

A chi-square test can also be used in evaluating a model. However, the chi-square test is extremely sensitive to large sample size. Therefore, this study will not use a chi-square test. The following sections provide the results of the CFA model evaluation and modification results.

Adaptability

The hypothesized model for Adaptability was rejected based on GOF statistics. A modification index suggested covariance between questions 1 and 3, questions 23 and 27, and questions 55 and 62. Theory was consistent with the suggested covariance, and thus covariance paths were added to the model. Figure 4 depicts the final hypothesized model for Adaptability latent construct.

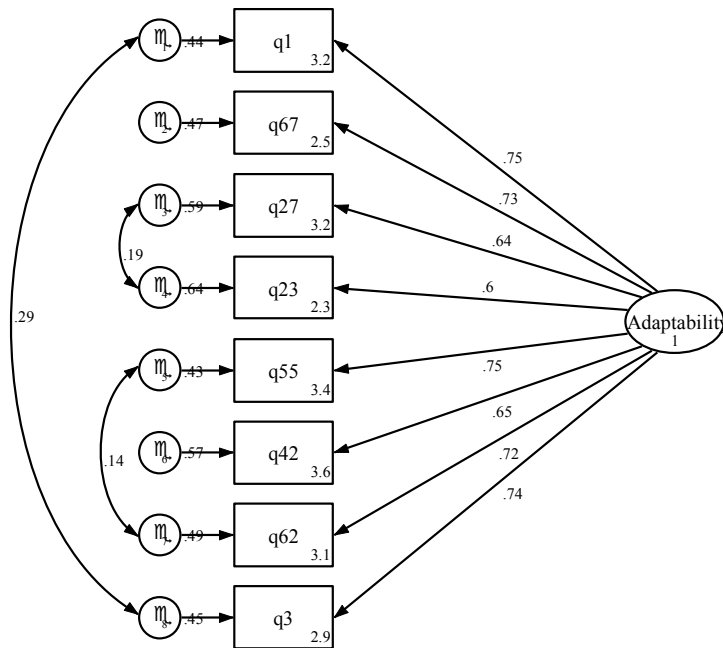


Figure 4: Adaptability Model with Standardized Estimates

This adjusted model fit the data relatively well based on the selected overall GOF statistics: RMSEA = .056 (<.06), CFI = .98 (>.90), and SRMR = .018 (<.08).

Additionally, the standardized estimates fall between 0 and 1, with higher values suggesting better indications of the observed values through the latent values. The model's standard estimates score reasonably well (>.6).

Mission

The hypothesized model for Mission was rejected based on GOF statistics. A modification index suggested covariance between questions 53 and 64, questions 6 and 12, questions 12 and 39, and questions 56 and 57. Theory was consistent with the

suggested covariance, and thus covariance paths were added to the model. Figure 5 depicts the final hypothesized model for the Mission latent construct.

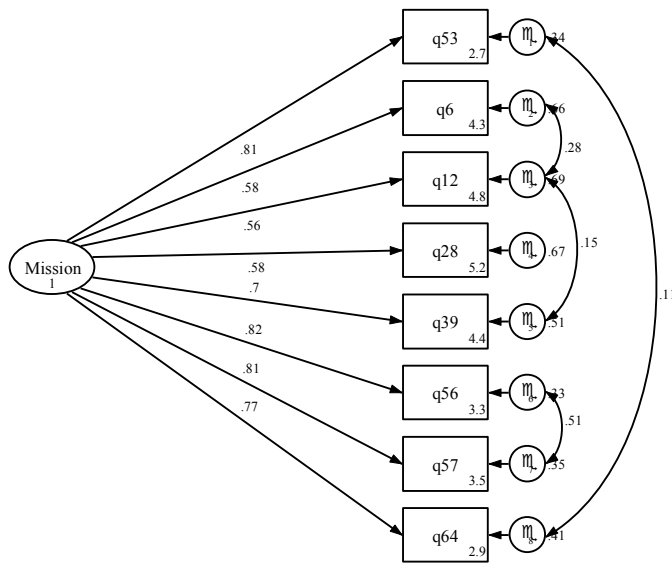


Figure 5: Mission Model with Standardized Estimates

This adjusted model fit the data relatively well based on the selected overall GOF statistics: RMSEA = .06 (<.06), CFI = .98 (>.90), and SRMR = .023 (<.08). The model's standard estimates score reasonably well (>.6).

Involvement

The hypothesized model for Involvement was rejected based on GOF statistics. A modification index suggested covariance between questions 26 and 20, questions 63 and 30, questions 25 and 24, questions 47 and 44, and questions 44 and 19. Theory was consistent with the suggested covariance, and thus covariance paths were added to the

model. Figure 6 depicts the final hypothesized model for the Involvement latent construct.

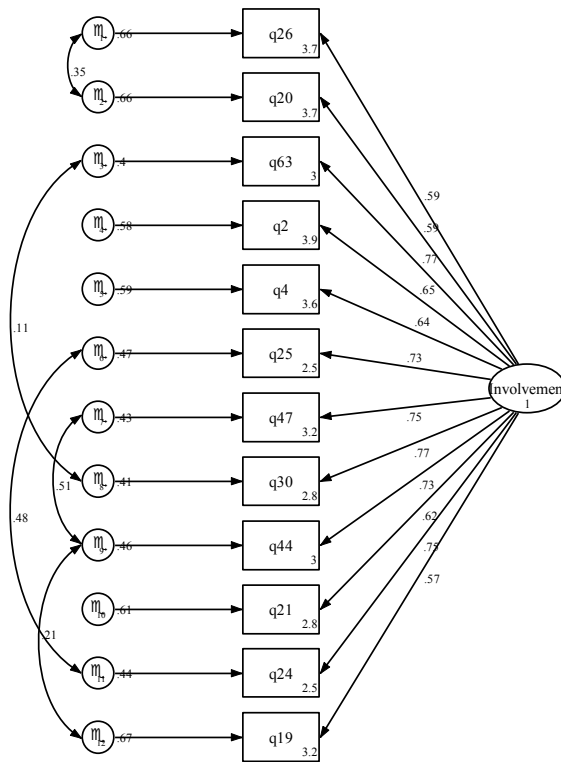


Figure 6: Involvement Model with Standardized Estimates

This adjusted model fit the data relatively well based on the selected overall GOF statistics: RMSEA = .059 (<.06), CFI = .97 (>.90), and SRMR = .027 (<.08). The model's standard estimates score reasonably well (>.6).

Consistency

The hypothesized model for Consistency was rejected based on GOF statistics. A modification index suggested covariance between questions 38 and 17, questions 38 and 34, questions 38 and 37, questions 54 and 61, questions 58 and 59, and questions 61 and 66. Theory was consistent with the suggested covariance, and thus covariance paths were added to the model. Figure 7 depicts the final hypothesized model for the Consistency latent construct.

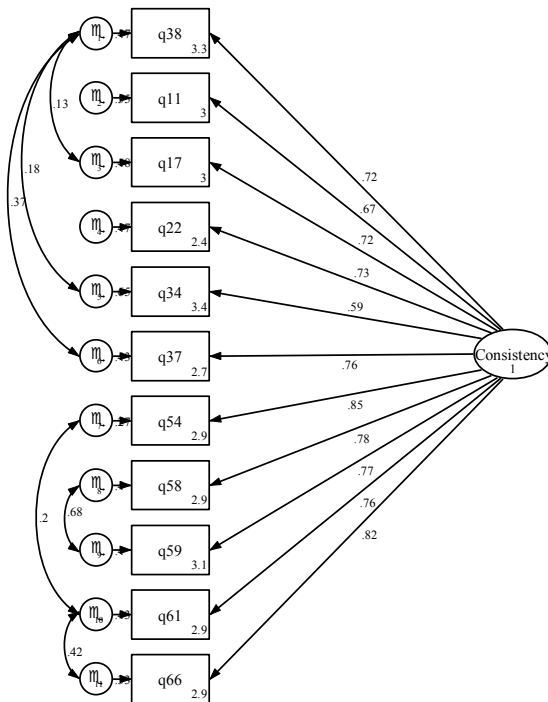


Figure 7: Consistency Model with Standard Estimates

This adjusted model fit the data relatively well based on the selected overall GOF statistics: RMSEA = .058 (<.06), CFI = .98 (>.90), and SRMR = .022 (<.08). The model's standard estimates score reasonably well (>.6).

Latent Variable Factor Scores

For each of the accepted latent construct models, the factor scores were retained as a way to reduce each scale to an index score, which this study uses as the primary explanatory variables. When reducing observed items into a latent variable it is important to consider the conceptual implications. For example, constructing latent variables from improperly calibrated exploratory factor analysis or poor conceptualization can result in misleading hypothesis tests. However, this study's use of Cronbach's alpha scores to test for internal validity as well as the results from the CFA provides sufficient evidence to support the use of factor scores.

Latent variable factor scores were computed with a weighted linear regression, using the mean vector and variance matrix from the fitted model. This method minimizes the sum of the squared components for the "error" factors (unique factors), which results in factor scores that are highly correlated to its corresponding factor, and not with other factors. Thus, the factor scores tend to be unbiased estimates that most likely represent the true factor scores (DiStefano, Zhu, and Mindril 2009).

Entrepreneurial Orientation Outcome Variables

This study uses two outcome variables to control for entrepreneurial orientation—the respondents' perception of being innovative and proactive. Because the FEVS items do not directly address individuals' entrepreneurial orientation, this study approximated constructs for innovation and proactiveness.

Each component in the Hughes and Morgan model of entrepreneurial orientation consists of three five-point Likert-scaled survey questions (see, Appendix 4). The items

were loaded into QDA Miner and coded according to each its representative scale—*risk*, *proactivity*, *innovation*, and *autonomy*. The FEVS questions were then compared to the coded Hughes and Morgan survey for similarities.

After reviewing FEVS, this research includes only the proactiveness and innovativeness dimensions of entrepreneurial orientation as outcome variables. The quantitative linguistic review, conducted by QDA Miner, as well as a manual review, found no FEVS item similarities to the risk or autonomy dimension of the Hughes and Morgan model.

The *innovation* and *proactive* outcome variables are comprised of one FEVS item each. Question 8, “I am constantly looking for better ways to do my job better,” represents *proactivity*, while question 32, “Creativity and innovation are rewarded,” represents *innovation*. There are two significant limiting factors to this approach.

The first limiting factor is conceptual. While question 8 conveys a clear sense of “alertness” and “proactiveness,” question 32 does not imply that the respondent is undertaking an *innovative* behavior. Question 32 only implies that the respondent perceives their organization to sufficiently award creativity and innovation. However, this question still fits the overall conceptual model, because one can expect organizational mission, adaptability, involvement, and consistency to have enabling or limiting effects on innovation and reward systems. Moreover, question 32 does not specify the *type* of reward—thus, the respondent is left to interpret whether the question assumes intrinsic or extrinsic reward and recognition. Thus, this study must assume that in organizations that reward creativity and innovation, greater instances of innovative behavior are also likely.

The second limiting factor is technical in nature. It is important to note that multiple-item scales are preferable to a single-item scale, when constructing an underlying concept. For example, in the psychology field, which routinely uses Likert-item surveys, Nunnally and Bernstein (1995, 67) state, “Measurement error averages out when individual scores are summed to obtain a total score.” Moreover, as McIver and Carmines (1981) note, individual items lack scope and are unlikely to represent a complex theoretical concept. However, although this is not a preferred method, it is common among social science researchers, and generally accepted when there is not enough data to create adequate scales. Nonetheless, this is clearly a weakness in this study, which ultimately affects the overall generalizability and validity of the findings.

Rather than using raw Likert responses for innovation and proactivity, this study created dichotomous variables by combining the “Strongly Disagree” and “Disagree” responses to form a “Weak” category (0). The “Strongly Agree” and “Agree” categories were combined to form a “Strong” category (1). In constructing the Innovation and Proactivity dichotomies, the mid-point—or neutral—scale was not included. Guy and Norvell (1977) find that omitting the neutral score from a Likert-scale is inconsequential. Indeed, this study found that leaving in the neutral score had a negligible effect on the overall results.

A third variable—entrepreneurial orientation—was created as a composite score comprised of the variables innovation and proactivity. First, the Cronbach’s alpha coefficient score of 0.384 confirmed weak internal validity between the two outcome variables, which is consistent with the theorized underlying concepts. Second, an

interaction variable was created, using the row product of *innovation* and *proactivity*.

This variable was then further reduced into a dichotomous variable, representing

“Strong” and “Weak” entrepreneurial orientation score.

Table 3, Table 4, and Table 5 displays the frequencies for the *proactivity*, *innovation*, and *entrepreneurial orientation* outcome variables, respectively.

Approximately 98% of the respondents have a strong proactivity score, while approximately 55% have a strong innovation score.

Table 3: Frequency Table, Proactivity

Proactivity	Freq.	Percent	Cum.
0. Weak	27,416	1.62	1.62
1. Strong	1,668,095	98.38	100.00
Total	1,695,511	100.00	

Table 4: Frequency Table, Innovation

Innovation	Freq.	Percent	Cum.
0. Weak	549,898	45.22	45.22
1. Strong	666,145	54.78	100.00
Total	1,216,043	100.00	

Table 5: Frequency Table, Entrepreneurial Orientation (Frequency / Cell Percentage)

Proactivity	Innovation		Total
	0. Weak	1. Strong	
0. Weak	20,626 1.81	2,089 0.18	22,715 2.00
1. Strong	469,459 41.24	646,072 56.76	1,115,531 98.00
Total	490,085 43.06	648,161 56.94	1,138,246 100.00

Demographic and Control Variables

The model uses six demographic variables to control for the respondents' age, gender, minority status, pay category, supervisory status, and whether or not the respondent works in a cabinet level agency.

Age is a categorical variable with four groups. The "29 and Under" group represents 7.09% of the respondents, the "30-39" group represents 19.39% of the respondents, the "40-49" group represents 28.15% of the respondents, the "50-59" group represents 33.18% of the respondents, and finally the "60 or Older" group represents 12.19% of the respondents. Table 6 provides the detailed frequency table.

Table 6: Frequency Table for Respondents' Age

Age	Freq.	Percent	Cum.
1. 29 and under	118,516	7.08	7.08
2. 30-39	325,114	19.43	26.52
3. 40-49	468,482	28.00	54.52
4. 50-59	555,445	33.20	87.72
5. 60 or older	205,529	12.28	100.00
Total	1,673,086	100.00	

Pay category is a categorical variable with five groups. The “wage scale” group comprises 7.92% of the population, the “GS 1-6” group comprises 8.93% of the population, the “GS 7-12” group comprises 47.35% of the population, the “GS 13-15” group comprises 26.99% of the population, and finally the “SES/SL/ST” group comprises 8.82% of the population. In general, employees in the GS 1-6 levels are typically junior-level employees or clerical staff. The GS 7-12 represent mid-level, while GS 13-15 are senior level employees. Typically, agency principals or special advisors comprise the Senior Executive Service (SES) staff. Table 7 provides the detailed frequency table.

Table 7: Frequency Table for Respondents’ Pay Category

Pay Category	Freq.	Percent	Cum.
1. Federal Wage System	133,475	7.90	7.90
2. GS 1-6	151,389	8.96	16.87
3. GS 7-12	801,571	47.47	64.34
4. GS 13-15	454,887	26.94	91.27
5. SES/SL/ST/Other	147,388	8.73	100.00
Total	1,688,710	100.00	

Employees are also categorized by their *supervisory status*, which has three groups: “non-supervisor,” “supervisor,” and “manager/executive.” Non-supervisor respondents comprise 81.97% of the population, supervisors comprise 11.74% of the population, and managers/executives comprise 6.29% of the population. In general, *age*, *pay category*, and *supervisory status* are correlated. Table 8 provides the detailed frequency table.

Table 8: Frequency Table for Respondents' Supervisory Status

Supervisory Status	Freq.	Percent	Cum.
0. Non-Supervisor	1,392,528	82.09	82.09
1. Supervisor/Manager	303,830	17.91	100.00
Total	1,696,358	100.00	

Gender and *minority status* are dichotomous categorical variables. Males represent 57.66% of the population, while females represent 42.34%. Also, minorities comprise 36.47% of the survey population, while the remaining 63.53% are classified as non-minority. Table 9 and Table 10 provide the detailed frequency table for gender and minority status, respectively.

Table 9: Gender Frequency Table

Sex	Freq.	Percent	Cum.
0. Male	971,815	57.66	57.66
1. Female	713,719	42.34	100.00
Total	1,685,534	100.00	

Table 10: Minority Status Frequency Table

Minority Status	Freq.	Percent	Cum.
0. Non-Minority	1,047,546	63.61	63.61
1. Minority	599,311	36.39	100.00
Total	1,646,857	100.00	

Finally, the *cabinet* variable classifies each respondent as belonging to a cabinet or non-cabinet level agency. This variable helps to provide a sense of whether or not being in a large agency has any effect on the outcome variables. Approximately 91.63% of respondents belong to cabinet agencies, while 8.37% belong to non-cabinet agencies. Although this study includes cabinet level as a variable, research almost unanimously agrees that size does not play a significant factor in organizational performance. This study includes the cabinet level variable, because this distinction may provide insight into external political involvement. That is, cabinet level agencies may have more external political involvement than non-cabinet level agencies. Table 11 provides the cabinet level frequency table.

Table 11: Cabinet Level Frequency Table

Cabinet Agency	Freq.	Percent	Cum.
0. Non-Cabinet	154,229	8.42	8.42
1. Cabinet	1,676,912	91.58	100.00
Total	1,831,141	100.00	

Statistical Models

The first stage of this study tests the overall effects of the explanatory variables (mission, adaptability, consistency, and involvement) against the outcome variables (innovation, proactivity, and entrepreneurial orientation). The second stage tests the interaction terms against the outcome variables. This study is exploratory in the sense that

it is primarily concerned with the directionality between the independent and dependent variables, rather than specific beta-coefficients.

Stage 1 and 2 uses the generalized linear model, logistic (logit) regression, which measures the relationship between a categorical dependent variable and one or more independent variables by using probability scores as the predicted values of the dependent variable. A logit model works well for this study because it relaxes the normal distribution and linearity assumptions generally associated with a standard regression model.

The model treats the organizational traits, interactions, and demographic variables as continuous, which causes the model to lose specificity but retain directionality. Because each demographic variable has increasing values, rather than random categories, treatment as continuous variables is permitted. For example, a respondent's income is categorized by five incrementally increasing categories. Therefore, this study can reasonably assert a directional relationship between income and the outcome variable, without having to create dummy variables for each income category.

The notational model for the hypotheses takes the form:

Equation 2: Notional Logistic Model

$$\theta_{(outcomes)} = \frac{e^{(\alpha + \beta_1 X_1 + \dots + \beta_i X_i)}}{1 + e^{(\alpha + \beta_1 X_1 + \dots + \beta_i X_i)}}$$

Where θ is the log odds of being in the “strong” category for innovation or proactivity, e is the base of the natural log, a is the constant, and B is the coefficient of the explanatory variables.

CHAPTER FIVE: FINDINGS

To summarize the previous chapters, this study takes an organizational approach to determining causal relationships between structure, culture, and environment, and the respondents' perceptions of innovativeness and proactivity. The theoretical framework argues that certain organizational characteristics will generate a greater organizational capacity to be innovative and proactive—key components of organizational entrepreneurship. To uncover these relationships, this study operationalizes the theoretical framework by using the DOCM, which is a construct of four organizational scales: mission, adaptability, involvement, and consistency. These constructs are reflective of the underlying organizational structure, environment, and culture. However, because placement and access to Federal employees for research purposes is time and resource prohibitive, this study simulates the DOCM scales using the FEVS—an annual Federal survey conducted across the entire U.S. Government.

The following chapter presents the findings from the exploratory statistical and logistic regression analysis. First, this chapter provides a detailed review of the explanatory variables' summary statistics, including a bivariate analysis using Spearman's rank correlation tests. Second, the control explanatory variables are regressed against the cultural variables to show any potential endogenous effects. Finally, interactions are explored between the cultural variables and control variables, as well as

interactions between the cultural variables in order to explore the DOCM, which express organizational control (flexibility and stability) and focus (internal and external) within a competing values framework consistent with Quinn and Rohrbaugh (1983).

Explanatory Variable Summary Statistics

Table 12 provides the mean, standard deviation, and count for each of the outcome and explanatory variables.

Table 12: Summary Statistics of Outcome and Explanatory Variables

Variable	N	Mean	SD	Min	Max
Proactiveness	1695511	0.98	0.13	0.00	1.00
Innovation	1216043	0.55	0.50	0.00	1.00
Entre. Orientation	1138246	0.57	0.50	0.00	1.00
Adaptability	1831141	-0.03	0.77	-2.31	1.44
Consistency	1831141	-0.05	0.76	-2.04	1.38
Involvement	1831141	-0.01	0.57	-1.85	1.11
Mission	1831141	-0.04	0.89	-3.58	1.51
External	1831141	0.18	0.38	0.00	1.00
Internal	1831141	0.17	0.38	0.00	1.00
Flexible	1831141	0.18	0.39	0.00	1.00
Stable	1831141	0.18	0.38	0.00	1.00
Gender	1685534	0.42	0.49	0.00	1.00
Male (%)	351595	55.86			
Female (%)	277838	44.14			
Age	1673086	3.24	1.11	1.00	5.00
29 and under (%)	36200	5.80			
30-39 (%)	107312	17.18			
40-49 (%)	180494	28.90			
50-59 (%)	222620	35.64			
60 or older (%)	77968	12.48			
Pay Category	1688710	3.20	0.99	1.00	5.00
Federal Wage System (%)	39547	6.27			
GS 1-6 (%)	36587	5.80			
GS 7-12 (%)	302063	47.87			
GS 13-15 (%)	203853	32.30			
SES/SL/ST/Other (%)	49022	7.77			
Gov. Tenure	1690609	3.78	1.88	1.00	6.00
Up to 3 years (%)	102032	16.15			
4 to 5 years (%)	62859	9.95			
6 to 10 years (%)	121911	19.30			
11 to 14 years (%)	69599	11.02			
15 to 20 years (%)	59236	9.38			
More than 20 years (%)	216007	34.20			
Minority Status	1646857	0.36	0.48	0.00	1.00
Non-Minority (%)	405757	66.03			
Minority (%)	208787	33.97			
Cabinet Agency	1831141	0.92	0.28	0.00	1.00
Non-Cabinet (%)	91647	13.54			
Cabinet (%)	585464	86.46			
Supervisory Status	1696358	0.18	0.38	0.00	1.00
Non-Supervisory (%)	504219	79.54			
Supervisory (%)	129681	20.46			

The outcome variables, Proactivity, Innovation and Entrepreneurial Orientation, are dichotomous. Therefore, the mean represents the percentage of the survey population categorized as 1, or having a “strong” perception. Approximately 98% of the population

answered, “Agree” or “Strongly Agree” to the question, “I am constantly looking for better ways to do my job better,” which represents proactiveness. Approximately 54% of respondents indicated they “Agree” or “Strongly Agree” with the question, “Creativity and innovation are rewarded,” which represents innovation. Entrepreneurial Orientation is an interaction between innovation and proactivity, where a score of 1 occurs when proactivity equals 1 and innovation equals 1. Therefore, approximately 55% of the survey population has “strong” Innovation and Proactivity scores.

The control variables, Cabinet, Gender, and Minority Status, are also dichotomous variables. Approximately 92% of respondents work for a cabinet-level agency. Females comprise 42% of the federal workforce, while minorities comprise approximately 36%. Finally, 18% of respondents hold supervisory status.

The variables Age, Pay Category, and Tenure are all categorical variables. Although the mean and standard deviation of categorical variables lose some conceptual meaning, DeVellis (1991, 112) notes that categorical variables may sometimes be treated as quasi-interval variables. This is true in the case of this study, when directionality is more important than the marginal effects.

Finally, the four organizational variables—Adaptability, Consistency, Mission, and Involvement—all have a relative mean of 0 and a relative standard deviation of 1. The process of condensing multiple Likert-scaled items into a single variable, through principle component factor analysis, results in a mean of 0 and a standard deviation of 1.

Table 13 and Table 14, below, provide a breakdown of the independent and control variables’ summary statistics by innovation and proactivity, respectively. It is

interesting to note that for the organizational variables, the means are negative in the “weak” category, and positive in the “strong” category for both Innovation and Proactivity. Also, in the Proactiveness category, the mean age and supervisory status increases from the weak to strong category. Average government tenure and female participation decreases from the weak to strong category. When the control variables are broken down by the Innovation dependent variable, the average age, minority status, and government tenure all increase from the weak to strong category. However, the average female participation decreases from 42.8% to 42.1%-- an overall negligible decrease.

Table 13: Summary Statistics by Innovation (1 "Weak", 2 "Strong")

	Innovation mean	sd
<hr/>		
Weak		
Adaptability	-.7306591	.6801149
Involvement	-.538269	.4798815
Mission	-.7989457	.826184
Consistency	-.7437164	.6666637
Pay Category	3.151271	1.037125
Cabinet Agency	.9269792	.2601709
Age	3.176928	1.111113
Gender	.4289203	.4949224
Minority Status	.3498321	.4769173
Supervisory Status	.1262433	.3321237
Gov. Tenure	3.76713	1.812367
<hr/>		
Strong		
Adaptability	.5507456	.5038492
Involvement	.4209746	.3684528
Mission	.5816578	.6047251
Consistency	.514865	.5105179
Pay Category	3.262702	.9606559
Cabinet Agency	.9035495	.2952082
Age	3.263994	1.117383
Gender	.4161352	.4929169
Minority Status	.3654615	.4815597
Supervisory Status	.2476572	.431652
Gov. Tenure	3.772278	1.930796
<hr/>		
Total		
Adaptability	-.0287092	.8688979
Involvement	-.012798	.6375254
Mission	-.0426549	.990531
Consistency	-.054269	.8579842
Pay Category	3.212549	.9973417
Cabinet Agency	.9141445	.2801507
Age	3.224984	1.115418
Gender	.4218842	.4938604
Minority Status	.3584771	.4795534
Supervisory Status	.1928956	.394572
Gov. Tenure	3.76996	1.878402
<hr/>		
Observations	452492	
<hr/>		

Table 14: Summary Statistics by Proactivity (1 "Weak", 2 "Strong")

	Proactivity mean	sd
<hr/>		
Weak		
Adaptability	-1.137073	.7468489
Involvement	-.8482682	.5493905
Mission	-1.307558	.9848495
Consistency	-1.041079	.7575545
Pay Category	3.148909	1.074488
Cabinet Agency	.9249708	.2634432
Age	3.176997	1.13503
Gender	.3247453	.4682889
Minority Status	.3912103	.4880313
Supervisory Status	.1125747	.3160784
Gov. Tenure	4.035788	1.756262
<hr/>		
Strong		
Adaptability	.0283224	.7543887
Involvement	.0293567	.5515983
Mission	.0204076	.861924
Consistency	.0009924	.7494094
Pay Category	3.200116	.9894007
Cabinet Agency	.9160072	.2773771
Age	3.240423	1.111422
Gender	.4261941	.4945229
Minority Status	.36557	.4815898
Supervisory Status	.1858878	.3890162
Gov. Tenure	3.749256	1.88622
<hr/>		
Total		
Adaptability	.0094782	.7684561
Involvement	.0151657	.5625604
Mission	-.0010652	.8801348
Consistency	-.0158576	.760978
Pay Category	3.199287	.9908559
Cabinet Agency	.9161521	.2771596
Age	3.239399	1.111835
Gender	.4245554	.4942755
Minority Status	.3659816	.4817045
Supervisory Status	.184701	.3880549
Gov. Tenure	3.753883	1.884538
<hr/>		
Observations	626641	
<hr/>		

Spearman Rank Correlation of Variables

The Spearman's rank correlation coefficient, or Spearman's Rho, is a nonparametric measure of dependence between two variables, defined as the Pearson correlation coefficient between ranked variables (Alan Agresti and Barbara Finlay 1999, 278). Unlike the Pearson correlation coefficient, which requires both variables to be on an interval or ratio scale, Spearman's rank correlation only requires the variables to be at least ordinal. Moreover, Spearman's Rho does not make any assumptions about the frequency distribution of the variables, and does not assume a linear relationship. The interpretation of Spearman's rho is similar to Pearson's correlation coefficient, where values can range between -1 and 1. A value of 0 indicates no relationship, and 1 indicates a perfect positive relationship. Table 15 provides the Spearman's correlation coefficients for all dependent and independent variables. The correlation table also helps to identify instances of multicollinearity.

The correlation coefficients between the independent and dependent categorical variables are all small, indicating no likely collinearity. Although the Spearman's rank correlation test does not indicate issues of collinearity, multicollinearity may still be an issue. Multicollinearity occurs when three or more independent variables are highly correlated; typically when the correlation coefficients are greater than ± 0.75 . When correlation coefficients are within this range, the regression can result in biased

estimators in a logistic model. Since no correlation coefficients are ± 0.75 among the control variables, multicollinearity is likely not an issue.

The independent variable Age is weakly, but positively correlated to Pay Category, Tenure, Supervisory Status, Cabinet, Proactivity, Innovation Adaptability, Consistency, Involvement, and negatively correlated to Minority, and Gender. The variable Pay Category is positively correlated with Tenure, Supervisory Status, Proactivity, Innovation, Adaptability, Mission, Consistency, Involvement, and is negatively correlated with Minority, Gender, and Cabinet. Government tenure is positively correlated with Supervisory Status, Gender, and Innovation, while negatively correlated to Minority, Cabinet, Adaptability, Consistency, and Involvement and Proactivity. The respondent's supervisory status is positively correlated with Proactivity, Innovation, Adaptability, Mission, Consistency, Involvement, and Cabinet, while negatively correlated to Minority, and Gender. Minority status is positively correlated with Gender, Innovation, Mission, Involvement, and negatively correlated with Cabinet. There is no significant correlation between Minority and Proactivity. The respondent's gender is positively correlated with Proactivity, and negatively correlated with Cabinet and Innovation. Cabinet-level agencies are negatively correlated to Proactivity, Innovation, Adaptability, Consistency, and Involvement. There is no significant relationship to Mission. Finally, Proactivity is positively correlated with Innovation, Adaptability, Mission, and Consistency.

Table 15: Spearman's Rank Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Age	1												
Pay Category	0.0974*	1											
Tenure	0.4840*	0.1606*	1										
Supervisory Status	0.1250*	0.2993*	0.2129*	1									
Minority Status	-0.0674*	-0.0873*	-0.0310*	-0.0612*	1								
Gender	-0.0359*	-0.0429*	0.0930*	-0.0915*	0.1017*	1							
Cabinet	0.0301*	-0.0600*	-0.0350*	0.0320*	-0.0472*	-0.1183*	1						
Proactivity	0.0108*	0.0071*	-0.0107*	0.0327*	-0.0015	0.0243*	-0.0092*	1					
Innovation	0.0431*	0.0765*	0.0130*	0.1466*	0.0072*	-0.0188*	-0.0403*	0.1422*	1				
Adaptability	0.0422*	0.0950*	-0.0130*	0.1622*	-0.0037	-0.0286*	-0.0438*	0.1627*	0.7265*	1			
Mission	0.0610*	0.0552*	0.0015	0.1312*	0.0135*	0.0035	-0.0552*	0.1575*	0.6790*	0.8816*	1		
Consistency	0.0379*	0.0886*	-0.0214*	0.1662*	-0.0183*	-0.0326*	-0.0486*	0.1533*	0.7194*	0.9154*	0.9059*	1	
Involvement	0.0546*	0.0841*	0.0042*	0.1426*	0.0076*	-0.0323*	-0.0339*	0.1618*	0.7343*	0.9221*	0.8803*	0.8901*	1
*p<.05, N=249,358													

The correlation matrix shows that the variables representing organizational traits are significantly correlated with each other, with correlation coefficients greater than 0.75. Although this is consistent with the literature (Denison and Mishra 1995), to address potential issues with multicollinearity, this study regresses the variables against all of the independent and dependent variables. From the regression, a variance inflation factor (VIF) is calculated from the R-squared value, using the formula: $1/(1 - (R\text{-squared}))$. The VIF estimates how much of the variance of a coefficient is “inflated” because of linear dependence with other predictors.

Table 16 lists the VIF for each of the organizational variables regressed against all other variables (except the outcome variables Innovation, Proactivity, and Entrepreneurial Orientation). The square root of the VIF is an indicator of how much larger the standard error is, than if the predictor variable were uncorrelated with all other variables. For example, in regression 1 (Adaptability) of Table 16, Mission’s VIF score is 5.76. The square root, 2.37, indicates that the standard error for Mission’s coefficient is 2.37 times larger than if Mission was uncorrelated with the other predictor variables. As a rule of thumb, the cutoff for severe multicollinearity is 10.

Table 16: Variance Inflation Factor Scores

	(1) Adaptability vif	(2) Mission vif	(3) Involvement vif	(4) Consistency vif
Mission	5.766852		5.400416	4.666698
Involvement	5.107913	6.696251		7.136867
Consistency	6.230423	6.111996	7.538352	
Gender	1.042225	1.035708	1.040754	1.041001
Supervisory Status	1.114187	1.115455	1.115877	1.112886
Age	1.371538	1.368483	1.371522	1.370489
Pay Category	1.068005	1.063468	1.068743	1.067955
Gov. Tenure	1.422577	1.423393	1.421518	1.420532
Minority Status	1.02627	1.023527	1.025465	1.022451
Cabinet Agency	1.023299	1.022667	1.022726	1.023332
Adaptability		8.760587	6.257968	7.226676
Observations	994024	994024	994024	994024

Variance inflation factors greater than 5 suggest that the multicollinearity should be investigated in small samples, while VIF greater than 10 is taken as an indication that the multicollinearity may be influencing the least squares estimates in large samples. Table 16 shows that the organizational variables generally have VIF scores greater than 4 but less than 10, and given the sample size is relatively large ($n > 900,000$), it is appropriate to use a VIF cutoff of 10. Thus, no additional treatment is necessary.

The next sections describe the logistic models and goodness-of-fit tests, as well as the results.

Regression Models

This study uses a logistic regression model to test each hypothesis. Logistic regression, in this study, estimates the log odds of a respondent being in the *Weak (0)* or

Strong (1) category, given an independent variable. The dependent variables, Innovation, Proactivity, and Entrepreneurial Orientation are coded 0 and 1, representing the “Weak” (1 or 2) and “Strong” (4 or 5) Likert categories. Any neutral response, 3, is dropped from the model.

The beta coefficient determines whether the curve increases or decreases, in much the same way the coefficients of a linear slope determine direction. Rather than interpreting the standard logit, this study will use the exponentiated form, which provides the odds ratio. Where the beta coefficient in a linear regression represents the rate of change for Y given a one-unit increase in X, the odds ratio estimates the odds increase from a one-unit increase in X. The exponential relationship implies that every unit increase in X has a multiplicative effect on the odds of success. The odds ratio is calculated as the anti-log, or exponentiation, of b : $OR = e^b$

Unlike Ordinary Least Squares (OLS) models, the logistic model does not require the same assumptions of normality, homoscedasticity, and an absence of autocorrelation. The two primary assumptions require that the model have no outliers and no high multicollinearity. Because the sample size is large, this model does not need to treat for outliers. Although there is correlation between the primary explanatory variables, the VIF scores did not reach the threshold to indicate a need for multicollinearity treatment, and the correlations are within the conceptual framework of the study.

Table 17 provides the results from the three primary models, one for Innovation, Proactivity, and Entrepreneurial Orientation. The next section describes the results for each.

Table 17: Model 1 Results

	(1) Proactiveness	(2) Innovation	(3) Entre. Ori~n
main			
Adaptability	1.723*** (0.0371)	2.658*** (0.0299)	2.702*** (0.0314)
Consistency	0.692*** (0.0150)	2.909*** (0.0312)	2.857*** (0.0316)
Involvement	4.811*** (0.136)	16.92*** (0.246)	17.15*** (0.257)
Mission	1.624*** (0.0246)	1.131*** (0.00959)	1.115*** (0.00977)
Age	1.127*** (0.00856)	1.019*** (0.00352)	1.023*** (0.00364)
Pay Category	0.979** (0.00654)	1.004 (0.00343)	1.006 (0.00354)
Gov. Tenure	0.878*** (0.00411)	1.031*** (0.00218)	1.030*** (0.00223)
1.Supervisory Status	1.279*** (0.0279)	1.378*** (0.0122)	1.363*** (0.0124)
1.Gender	1.716*** (0.0254)	1.096*** (0.00741)	1.090*** (0.00760)
1.Minority Status	0.924*** (0.0132)	1.179*** (0.00832)	1.147*** (0.00832)
1.Cabinet Agency	1.092*** (0.0288)	0.824*** (0.00996)	0.830*** (0.0104)
Constant	156.1*** (6.578)	1.142*** (0.0219)	1.114*** (0.0221)
N	1495463	1104461	1034848
r2_p	0.229	0.597	0.593

Exponentiated coefficients; Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Before describing the results, it is first necessary to describe how well the data fit the model. Typically, these tests summarize the variance between the predicted and observed values. Although assessing a model's fit is important for any statistical model, the weight of its importance should be taken with caution. For example, this study's large sample population significantly degrades the accuracy and usability of most, if not all, fit tests. For example, strong evidence suggests that the Hosmer-Lemeshow test, which is a goodness of fit statistic for logistic models, becomes increasingly sensitive to sample size. As sample size increases, the Hosmer-Lemeshow p-value will become more significant, thus rejecting the null-hypothesis that the model fits the data well (Hosmer and Lemeshow 1980; Kramer and Zimmerman 2007).

In lieu of the Hosmer-Lemeshow test, this study utilizes classification tables, which measures the proportion of the model that classifies true positive and true negative events. This study uses a routine cutoff probability of 0.5 as the threshold to determine the model's predictive success. The accuracy of classification is measured by its *sensitivity*, or ability to predict the event correctly (true positive), and *specificity*, which is the model's ability to predict a non-event correctly (true negative). Thus, *sensitivity* is the proportion of event responses that were predicted to be events, and *specificity* is the proportion of non-event responses that were predicted to be non-events. Table 18 shows the sensitivity, specificity, and overall classification for each model.

Table 18: ROC Characteristics

	Proactivity	Innovation	Entre. Orientation
<i>Sensitivity</i>	99.99%	93.01%	93.63%

<i>Specificity</i>	1.33%	84.15%	82.98%
<i>% Correctly Classified</i>	98.73%	89.52%	89.46%
<i>Area of ROC Curve</i>	.89	.95	.95

Clearly, the sensitivity scores across each model are high, which indicates the models' ability to predict true positive outcomes. Conversely, the specificity probabilities are low for Proactivity, indicating a poor fit. A high specificity score indicates the model has a low probability of incorrectly predicting an event. However, the overall classification scores for each model are high—indicating a relatively accurate fit between the model and data. As previously mentioned, since the sample population is large, these results should be interpreted with caution.

The final goodness of fit statistic, Receiver Operator Characteristic (ROC), measures the area under a plot of the model's sensitivity against 1 *minus* sensitivity (1-*sensitivity*). The closer the area is to 1, the closer the model is to a perfect fit. Thus, the area under the curve represents the probability that if one positive outcome and one negative outcome are selected at random, the positive outcome has a higher predicted probability than the negative outcome. The area under the curve for the Proactivity model is 0.89, 0.95 for the Innovation model, and 0.96 for the Entrepreneurial Orientation model. ROC area above 0.80 is considered good, while greater than 0.90 is considered excellent.

In sum, the three regressions for model 1—Proactivity, Innovation, and Entrepreneurial Orientation—all exhibit positive indicators for a well-fitted model.

However, as noted previously, because the models have a large sample population, the goodness of fit interpretations should be taken with caution.

Model 1: Results

Proactivity

In the first regression, the output indicated that Adaptability, Involvement, and Mission are positively correlated with the odds of a respondent having a strong Proactivity score ($p < .001$). The variable Consistency was found to be negatively correlated to Proactivity ($p < .001$).

Using the STATA *margins*- command, the predicative margins for each of the cultural variables ($\text{Pr}(Y)=1$) is calculated. The predicted margins provide a useful visual aid, which demonstrates the probability of a respondent having a strong Proactivity score at the each factor score level.

Predictive Margins

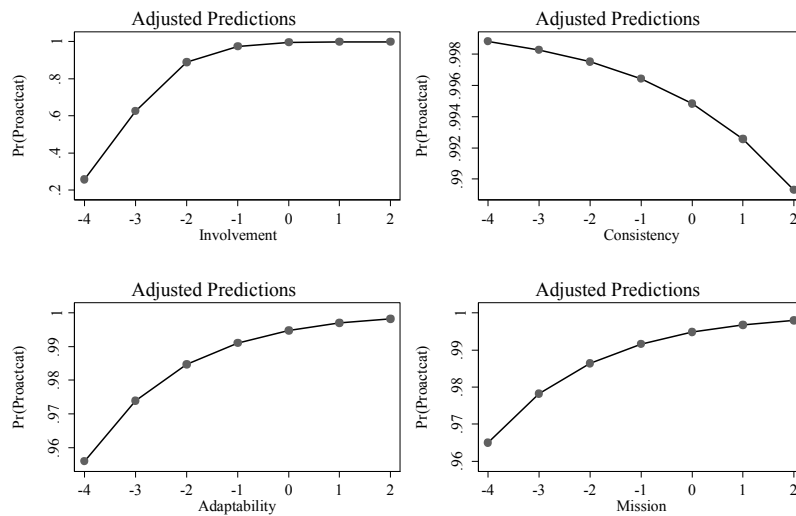


Figure 8 shows the predictive margins for Mission, Adaptability, Consistency, and Involvement. Involvement, Adaptability, and Mission all have an increasing relationship with the probability of a respondent's Proactivity score being strong. Involvement, however, increases at a much slower rate than compared to Adaptability and Mission. Consistency shows a slight decreasing relationship.

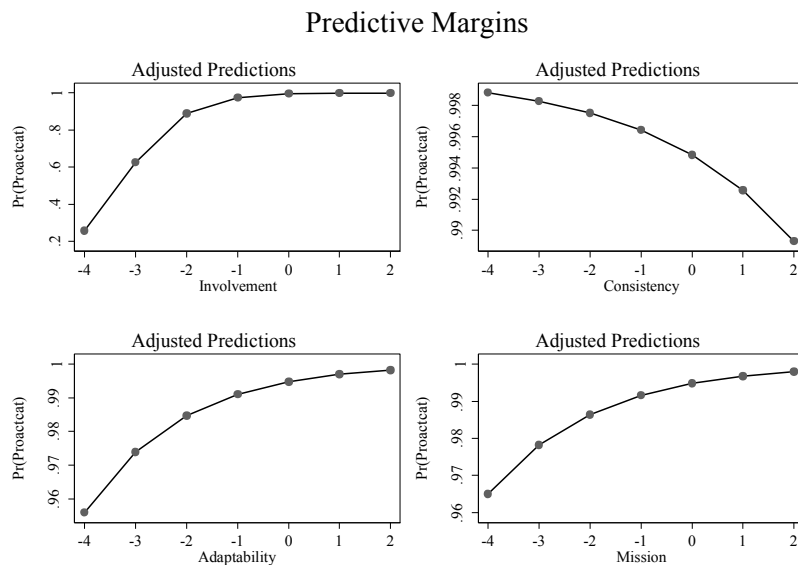


Figure 8: Predicted Margins, Proactivity

The control variables for Age, Tenure, Supervisory Status, Gender, and Minority Status all have positive correlations with the odds that a respondent has a strong Proactivity score ($p < .001$). The control variables for Cabinet and Pay Category do not have a significant relationship with Proactivity.

Innovation

In the first model, Adaptability, Mission, and Involvement are positively correlated with the odds of a respondent having a “strong” Innovation score ($p < .001$). The variable Consistency has a negative relationship with the odds of a respondent having a “strong” innovation score ($p < .001$).

Figure 9 shows the predicted margins for each of the organizational variables for Innovation. The predicted margins clearly show an upward trend for Adaptability, Consistency, Mission, and Involvement. Thus, the probability of being in the “strong” category for Innovation does to appear to vary greatly across the factor scores.

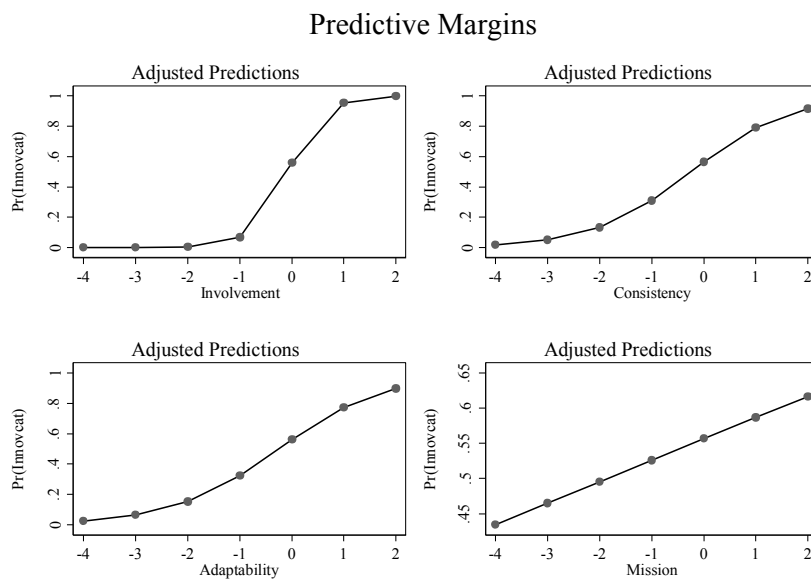


Figure 9: Predicted Margins, Innovation

Of the seven control variables, Age, Tenure, Supervisory Status, Minority Status, and Cabinet level were all positively correlated to the odds of a respondent being in the strong Innovation category ($p < .001$). The respondents pay category and gender were not found to be significant correlates to Innovation.

Entrepreneurial Orientation

The third regression uses an interaction between Innovation and Proactivity as the dependent variable to express a respondent's perceived Entrepreneurial Orientation. In the Entrepreneurial Orientation variable, a score of 1 occurs when the respondent has a strong Innovation *and* Proactivity score. In this regression, Adaptability, Consistency, and Involvement are all positively correlated with the odds a respondent has a strong Entrepreneurial Orientation score ($p < .001$). Although Mission has a negative correlation, it is not significant at the $p < .05$ level.

Figure 10 displays the predicted margins for Entrepreneurial Orientation over each of the cultural variables' factor scores. Adaptability, Involvement, Mission and Consistency all show an increasing relationship with the probability that the respondent's Entrepreneurial Orientation score is strong. It is interesting to note that the results from the Entrepreneurial Orientation regression do not greatly vary from the Innovation model. This may suggest that perceptions innovation has a more of an effect on Entrepreneurial Orientation than proactiveness.

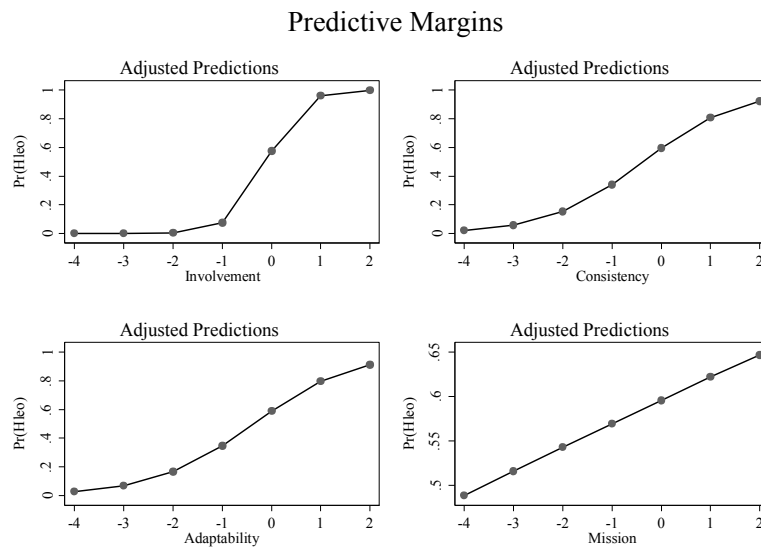


Figure 10: Predicted Margins, Entre. Orientation

For the control variables, Age, Tenure, Supervisory Status, Minority Status, and Cabinet all have a positive correlation with the odds that a respondent will have a strong Entrepreneurial Orientation score ($p < .001$). The control variables for a respondent's pay category and gender were not found to be significant at the $p < .05$ level.

Model 2: Interactions Supervisory Status and Cultural Variables

The results from model 1 indicated that at least some of the control variables have a strong and significant effect on the outcome variables. Specifically, a respondent's Tenure and Supervisory Status were statistically significant across all three models. Therefore, interaction terms were created between Supervisory Status and each latent variable, and regressed against Proactiveness, Innovativeness, and Entrepreneurial Orientation.

Supervisory Status was determined to be a significant predictor of not only Tenure, but also Age and Pay Category. Table 19 shows a cross-tabulation of selection probabilities between Tenure and Supervisory Status. It is evident that as a respondent's government tenure increases, the probability of being in a non-supervisory role decreases. Likewise, increasing tenure also increases the probability of being in a supervisory or management/executive role. Table 20 shows the same effect with a respondent's pay category. Generally, as a respondent's pay increases, the likelihood of being in a supervisory position also increases.

Table 19: Cross-tabulation of Tenure and Supervisory Status

Gov. Tenure	Supervisory Status		Total
	0. Non-Su	1. Superv	
1. Up to 3 years	92.25	7.75	100.00
2. 4 to 5 years	90.03	9.97	100.00
3. 6 to 10 years	83.65	16.35	100.00
4. 11 to 14 years	79.81	20.19	100.00
5. 15 to 20 years	76.63	23.37	100.00
6. More than 20 years	74.92	25.08	100.00
Total	82.07	17.93	100.00

Table 20: Cross-tabulation of Pay Category and Supervisory Status

Pay Category	Supervisory Status		Total
	0. Non-Su	1. Superv	
1. Federal Wage Syste	82.64	17.36	100.00
2. GS 1-6	96.63	3.37	100.00
3. GS 7-12	89.24	10.76	100.00
4. GS 13-15	66.69	33.31	100.00
5. SES/SL/ST/Other	75.12	24.88	100.00
Total	82.05	17.95	100.00

From a theoretical perspective, testing interaction terms helps to control for sub-populations within the organization. Some evidence suggests that sub-populations form around employee level, specifically its executive, management, and line-level employees (Schein 2004; J. Wilson 1989; Downs 1967; Ouchi 1981).

Table 21 displays the results for model 2. In each of the models, the *Non-supervisor* category is the base outcome (0). Thus, all results are in comparison to being in the non-supervisor category.

Table 21: Model 2, Supervisory Status Interactions

	(1) Proactiveness	(2) Innovation	(3) Entre. Ori~n
main			
1.Supervisory Status	1.249*** (0.0412)	1.383*** (0.0123)	1.368*** (0.0125)
Adaptability	1.598*** (0.0365)	2.733*** (0.0341)	2.738*** (0.0354)
Consistency	0.748*** (0.0172)	2.925*** (0.0349)	2.907*** (0.0359)
Involvement	4.899*** (0.147)	16.60*** (0.267)	17.00*** (0.283)
Mission	1.621*** (0.0259)	1.134*** (0.0107)	1.119*** (0.0109)
Supervisor*Adaptability	1.908*** (0.129)	0.858*** (0.0246)	0.929* (0.0273)
Supervisory*Consistency	0.533*** (0.0355)	0.971 (0.0263)	0.915** (0.0253)
Supervisor*Involvement	0.855 (0.0756)	1.104** (0.0413)	1.044 (0.0399)
Supervisory*Mission	1.007 (0.0488)	0.985 (0.0211)	0.983 (0.0215)
Age	1.128*** (0.00857)	1.019*** (0.00352)	1.023*** (0.00365)
Pay Category	0.979** (0.00654)	1.004 (0.00343)	1.007 (0.00355)
Gov. Tenure	0.879*** (0.00411)	1.031*** (0.00218)	1.030*** (0.00224)
1.Gender	1.713*** (0.0253)	1.096*** (0.00742)	1.090*** (0.00761)
1.Minority Status	0.924*** (0.0132)	1.179*** (0.00832)	1.147*** (0.00832)
1.Cabinet Agency	1.092*** (0.0288)	0.824*** (0.00996)	0.830*** (0.0104)
Constant	157.2*** (6.657)	1.142*** (0.0220)	1.114*** (0.0221)
N	1495463	1104461	1034848
r2_p	0.230	0.597	0.593

Exponentiated coefficients; Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Proactivity

In model 2, Adaptability, Mission, Consistency, and Involvement each have the same directional and statistical relationship with Proactivity as model 1. Additionally, each of the control variables also exhibited the same relationship to Proactivity as model the control variables in model 1. Model 2 introduces an interaction term for supervisory status. For the interaction terms being a supervisor, compared to a non-supervisor resulted in a positive correlation with the odds of having a strong Proactiveness score for Adaptability ($p < .001$). Mission, although positive, was not significant. Conversely, being a supervisor, compared to a non-supervisor, had a negative correlation with the odds of a respondent's probability of having a strong Proactiveness score for Consistency. However, only Consistency was significant ($p < .001$). Figure 11 displays the predicted probabilities for a supervisor and non-supervisor's probability of a strong Proactive score for each of the four cultural variables.

Predictive Margins

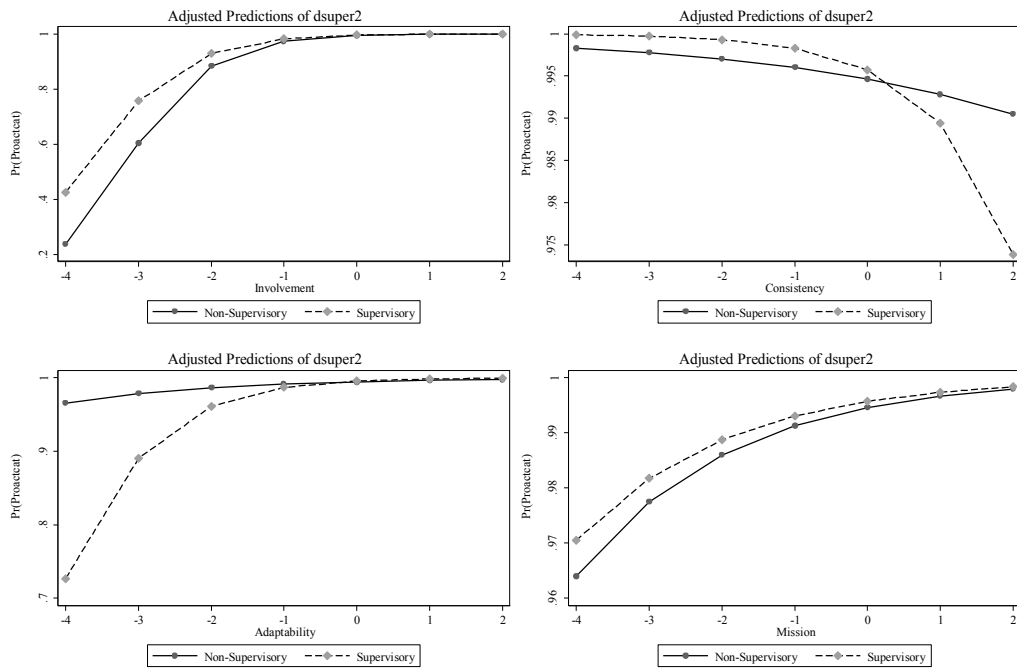


Figure 11: Interaction Predictive Margins, Proactivity

Generally, each of the figures shows a close relationship between the interaction and main effects models. However, there are subtle differences in the interaction model. First, Figure 11 shows that a supervisor's probability generally lags behind a non-supervisor for Adaptability and Mission when the factor scores are low. However, as the scores approach 0, the differences in probabilities between a supervisor and non-supervisor become indistinguishable.

The Consistency scores show an interesting effect whereby both the non-supervisor and supervisor probabilities decrease as the Consistency scores increase. However, whereas the non-supervisor tends to decrease only slightly, the supervisor's probability score drops dramatically as the Consistency score passes from negative to

positive. Finally, both a non-supervisor and supervisor have a positive relationship with the odds of having a strong Proactive score as Involvement increases. For Involvement, the Supervisor's probably lags slightly behind the non-supervisor, but eventually converge as the Involvement score approaches 1.

Innovation

For the Innovation regression in model 2, the Adaptability, Consistency, Involvement, and Mission relationships to the dependent variable remained the same as model 1. Likewise, each control variable's relationship to Innovation stayed the same.

The interaction with Supervisory Status displayed different results from the Proactivity regression. A supervisor, compared to a non-supervisor, had a negative correlation to the odds a respondent's has a strong Innovation score for Adaptability ($p < .001$). It should also be noted that the Adaptability relationship switched signs from the Proactivity to the Innovation regression. Although the interaction with Consistency also had a negative relationship, it is not significant at the $p < .05$ level. A supervisor's Mission score is negatively correlated with the odds the respondent was in the strong Innovation category, compared to a non-supervisory, but not significant. Finally, a supervisor's Involvement score is positively correlated with the odds of having a strong Innovativeness score ($p < .01$) Figure 12 displays the predicted probabilities for each of the organizational variables over the interaction term, Supervisory Category.

Predictive Margins

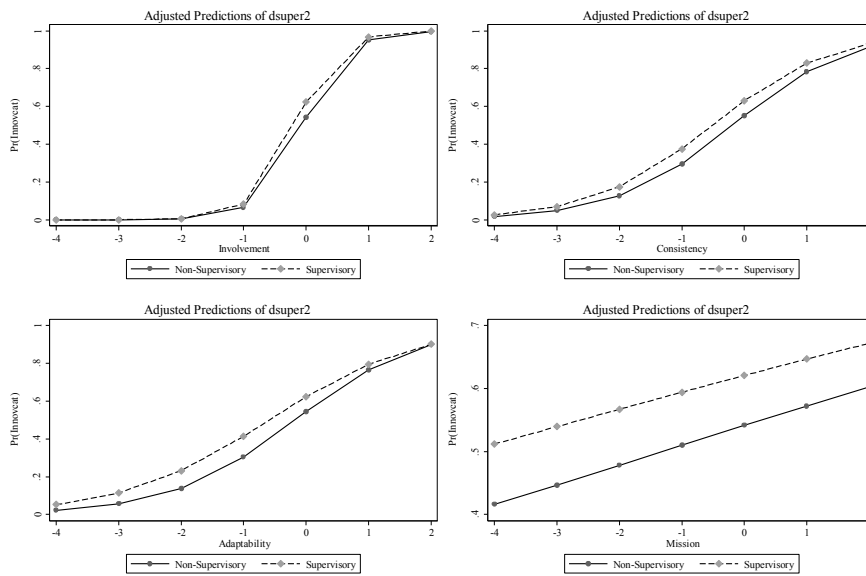


Figure 12: Interaction Predictive Margins, Innovation

The plots for Adaptability, Consistency, Mission, and Involvement all show an increasing relationship with the probability of having a strong Innovativeness score. Although there is little difference between the supervisor and non-supervisor for Adaptability, Consistency, and Involvement, it is interesting to note that in each case the non-supervisor lags slightly behind the supervisor. This relationship is clearly different from the Proactivity model, possibly suggesting that supervisors and non-supervisors view proactiveness and innovativeness differently. Finally, the predicted margin for Missions shows the most interesting relationship. Unlike the other three latent constructs, there is a relatively wide gap between supervisors non-supervisors' probability of having strong Innovativeness scores.

Entrepreneurial Orientation

In the Entrepreneurial Orientation interaction regression, the correlations among the primary independent variables stay the same. Adaptability, Consistency, and Involvement all have a positive correlation with the probability that the respondent will have a strong Entrepreneurial Orientation score ($p < .001$). Mission has a negative correlation ($p < .01$). The coefficients did not generally change from the Innovation regression, indicating that the Innovation regression has a strong effect on Entrepreneurial Orientation. The control variables also have the same correlation with Entrepreneurial Orientation as they did in model 1.

With the supervisory interaction terms, a supervisor, compared to a non-supervisor, had a negative correlation with the odds of being in a strong Entrepreneurial Orientation category for Adaptability, Consistency, and Mission. However, only Adaptability and Consistency were found statistically significant. Although the Involvement interaction had a positive relationship with Entrepreneurial Orientation, it was not significant at the $p < .05$ level.

Figure 13 shows the predicted probabilities for each of the cultural variables over Supervisory Category. The relationships show distinct similarities with the Innovation regression, where Involvement, Consistency, Mission, and Adaptability all exhibit increasing correlations with the probability of having a strong Entrepreneurial Orientation score. Like the Innovation regression, the non-supervisor tends to lag slightly behind the supervisor. The Mission trait shows a more distinctive divergence between supervisory and non-supervisory status. However, the probability scores are generally higher in the

Entrepreneurial regression, compared to the Innovation and Proactivity regressions. This indicates that the interaction between Innovation and Proactivity may lead to increased inclusiveness. That is, higher Entrepreneurial Orientation rates when Mission scores are lower.

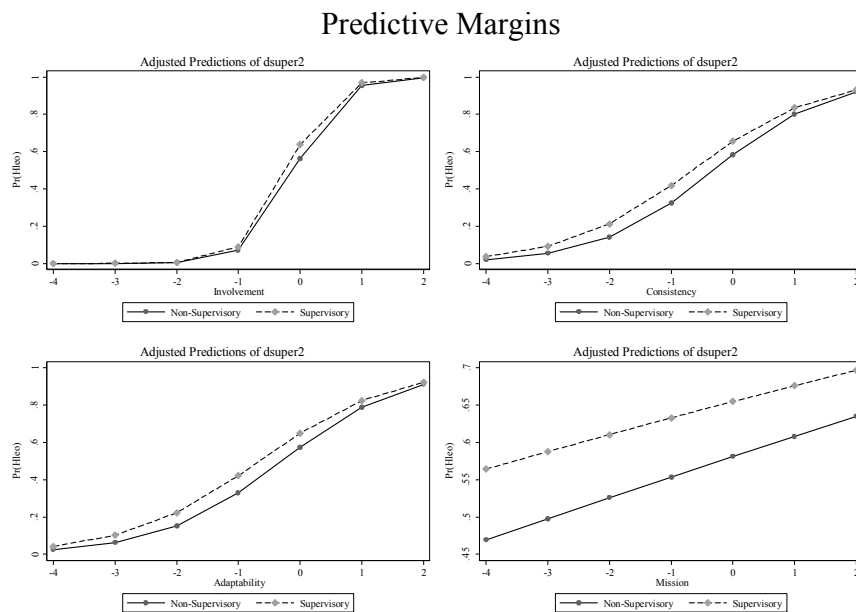


Figure 13: Interactive Predictive Margins, Entre. Orientation

Model 3: Dimensionality Effects of Organizational Traits

Consistent with Quinn and Rohrbaugh (1983), Hofstede (1986), and Dension's (1997) multidimensional approaches to organizational life, this study introduces two macro-level dimensions—organizational focus and control—through the interaction of the four primary organizational variables. The organizational focus dimension is

comprised of an internal versus external orientation, while the organizational control dimension consists of a flexible versus stable orientation. To construct these variables, each organizational variable was first transformed into a dichotomous variable, where factor scores in the 75th percentile were scored as 1, and the remaining scored as 0. The first interaction is between Mission and Adaptability, for an organization with an “external” focus. The second interaction is between Involvement and Consistency, for an organization with an “internal” focus. For the organizational control dimension, “stability” is represented by an interaction between Mission and Consistency. Finally, the “flexibility” dimension is an interaction between Involvement and Adaptability. Table 22 and Table 23 provide a cross-tabulation of frequencies (percentage) between the organizational focus and control dimensions.

Table 22: Focus Dimension Cross-tabulation

External	Internal		Total
	0	1	
0	77.32	3.44	80.76
1	3.50	15.74	19.24
Total	80.82	19.18	100.00

Table 23: Flexibility Dimension Cross-tabulation

Flexible	Stable		Total
	0	1	
0	75.59	3.79	79.38
1	4.89	15.74	20.62
Total	80.48	19.52	100.00

Table 24 provides the results from model 3, which includes the Internal, External, Flexible, and Stable dimensions, as well as the primary independent variables and its interactions with Supervisory Status. The control variables Age, Pay Category, Government Tenure, Gender, Minority Status, and Cabinet-level agency are also included. The following sections will detail the results of the dimensionality interaction model.

Table 24: Model 3 (Full Model)

	(1) Proactiveness	(2) Innovation	(3) Entre. Orientation
main			
1.Supervisory Status	1.262*** (0.0422)	1.387*** (0.0123)	1.373*** (0.0125)
Adaptability	1.538*** (0.0351)	2.806*** (0.0358)	2.791*** (0.0369)
Consistency	0.770*** (0.0178)	2.987*** (0.0363)	2.994*** (0.0377)
Involvement	4.892*** (0.147)	15.99*** (0.262)	16.38*** (0.278)
Mission	1.635*** (0.0262)	1.185*** (0.0113)	1.171*** (0.0116)
Supervisor*Adaptability	1.784*** (0.120)	0.860*** (0.0247)	0.932* (0.0274)
Supervisory*Consistency	0.555*** (0.0368)	0.974 (0.0265)	0.917** (0.0255)
Supervisor*Involvement	0.874 (0.0770)	1.104** (0.0414)	1.046 (0.0400)
Supervisory*Mission	1.027 (0.0498)	0.991 (0.0212)	0.989 (0.0217)
External	2.709*** (0.350)	0.796*** (0.0172)	0.834*** (0.0182)
Internal	0.513*** (0.0445)	1.343*** (0.0344)	1.262*** (0.0322)
Flexible	5.163*** (0.776)	1.088*** (0.0256)	1.129*** (0.0269)
Stable	0.373*** (0.0266)	0.695*** (0.0142)	0.673*** (0.0138)
Age	1.128*** (0.00856)	1.019*** (0.00352)	1.023*** (0.00365)
Pay Category	0.980** (0.00655)	1.005 (0.00344)	1.008* (0.00356)
Gov. Tenure	0.879*** (0.00411)	1.031*** (0.00218)	1.030*** (0.00224)
1.Gender	1.713*** (0.0253)	1.095*** (0.00742)	1.089*** (0.00761)
1.Minority Status	0.920*** (0.0132)	1.178*** (0.00833)	1.146*** (0.00833)
1.Cabinet Agency	1.091*** (0.0288)	0.823*** (0.00995)	0.829*** (0.0104)
Constant	156.9*** (6.682)	1.164*** (0.0224)	1.135*** (0.0226)
N	1495463	1104461	1034848
r2_p	0.232	0.598	0.593

Exponentiated coefficients; Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Proactivity

The primary independent and control variables, including the interactions with Supervisory Status, exhibited the same directional relationships found in model 1.

In model 3, the External interaction has a strong positive correlation with the odds that a respondent has a strong Proactivity score ($p < .001$). Conversely, the Internal interaction has a strong negative correlation with the odds that a respondent has a strong Proactivity score ($p < .001$).

The Flexibility interaction exhibited a very strong positive correlation with the odds that respondent has a strong Proactivity score ($P < .001$). The Stability interaction has a negative correlation with the odds that a respondent has a strong Proactivity score ($p < .001$).

Innovation

The primary independent and control variables, including the interactions with Supervisory Status, exhibited the same directional relationships found in model 1.

In the Innovation regression, the External interaction had a negative relationship with the odds a respondent had a strong Innovation score ($p < .001$), whereas the Internal interaction had positive relationship ($p < .001$). This is distinctly opposite of the results from the Proactivity regression.

The Flexibility interaction exhibited a positive, but weak, correlation with the odds that a respondent has a strong Innovation score ($p < .001$). The Stability interaction showed a negative correlation with the odds that a respondent has a strong Innovation score ($p < .001$).

Entrepreneurial Orientation

The primary independent and control variables, including the interactions with Supervisory Status, exhibited the same directional relationships found in model 1.

In the Entrepreneurial regression, the External interaction had a negative correlation with Entrepreneurial Orientation ($p < .001$), while the Internal interaction had a positive, but weak, correlation with Entrepreneurial Orientation ($p < .01$). On the organizational control dimension, the model 3 found a weak, but positive correlation between the Flexibility interaction and the odds of being in the strong Entrepreneurial Orientation category ($p < .05$). Finally, the Stability interaction showed a negative correlation with Entrepreneurial Orientation ($p < .001$).

Summary

Model 1 tests the primary independent variables and control variables against the odds of being in the strong Proactivity, Innovation, and Entrepreneurial Orientation categories. Model 2 includes an interaction term between a respondent's supervisory status and each of the cultural variables. This was primarily based on prior theory, as well as the results from Model 1. Finally, Model 3 added interactions between the organizational variables to account for the multi-dimensional aspects of organizational focus (internal and external) and organizational control (flexibility and stability). Additionally, Model 3 included the supervisory status interactions as well as the control variables. This study uses Model 3, which is the fully saturated model, as the primary model to explain the results of each hypothesis.

CHAPTER SIX: DISCUSSION, IMPLICATIONS, AND LIMITATIONS

The following chapter discusses the study's results within the context of relevant theoretical and practical research. The regression models support the hypotheses that organizational factors affect Federal government employees' perceptions of innovativeness and proactiveness. The findings are generally consistent with business management scholarship. However, some findings fail to

Involvement

To summarize, involvement, a scale created by Denison (1997), assesses empowerment, team orientation, and capability development. These organizational elements all affect the extent to which employees identify with the organization. Ultimately, commitment is a trait that scholars routinely link to organizational performance. In public agencies, aspects of involvement are reflective of bureaucrats' organizational commitment, which Kim (2005, 247) defines as, "...the relative strength of an individual's identification with, and involvement in, a particular organization." Porter (2003, 604) characterizes commitment through three factors: a strong belief and acceptance in the organization's goals, willingness to exert effort on behalf of the organization, and a strong desire to maintain membership. Research from business administration links involvement to organizational performance through empowered,

engaged, and developed employees working in team environments (Lawler 1980; Hildreth 2004; Small 2009).

This study suggests that involvement, a trait correlated within the literature to commitment and performance, is positively correlated with perceptions of proactiveness and innovativeness. The first hypothesis suggests that organizational involvement helps to foster a greater sense of organizational commitment and ownership, and leads to a greater capacity to operate under autonomous conditions by instilling trust in management (Denison and Mishra 1995, 214). Table 25 provides the Involvement hypotheses and results.

Table 25: Involvement Hypothesis and Results

		Innovation	Proactiveness	Entre. Orientation
Involvement	<i>Hypothesis</i>	+	+	+
	<i>Result</i>	+	+	+
Involvement*Supervisory	<i>Hypothesis</i>	+	+	+
	<i>Result</i>	+	- (Not Sig)	+ (Not Sig)

The results indicate Involvement has a significant and positive relationship to perceptions of innovation, proactivity, and entrepreneurial orientation, thus supporting the hypothesis. The positive correlations between involvement and perceptions of innovativeness and proactiveness imply that organizational commitment through empowerment and team orientation may affect the ability to *be* innovative or proactive. In involved and committed organizational environments, employees likely feel a greater

responsibility to achieve core organizational tasks, which can lead to creative behavior. Moreover, empowerment implies a greater degree of flexibility—a necessary condition to pursue activities that may not be entirely consistent with core tasks and objectives.

Interestingly the results show that that involvement has a stronger effect on innovation than proactiveness. From this, one may infer that strong organizational involvement and commitment, which is also correlated with organizational mission, affects the degree to which employees may explore new ideas. That is, strong organizational commitment to core tasks, missions, and objectives may dampen alertness to new opportunities.

The interaction between supervisory status and involvement produces significant negative changes to the relationship with Innovation, Proactivity, and Entrepreneurial Orientation. One possible explanation for the reversal is that in a highly committed organization, members who hold supervisory status may not be interested in improving power, status, or income. Of course, this assumes a self-interested approach over a public service motivation.

Prior research on differences between public and private organizations attempts to show that structural complexity, formal rules and procedures, red tape, and weak linkages between performance and award/incentive systems create different perceptions of organizational commitment and involvement within the public sector (Dehart-Davis and Pandey 2005). Many of these studies try to highlight the role that sector plays in performance. However, scholars within the New Public Management and Public Service Motivation fields find consistent evidence supporting organizational commitment and

involvement among employees, consistent with private sector counterparts (Denhardt 2008).

From a theoretical perspective, this research most closely supports findings from public service motivation scholarship. Scholarship generally shows that employee public service motivation has strong effects on performance (S. Kim 2005; Kuo-Tsai Liou and Nyhan 1994; Romzek 1990). Perry and Wise (1990) reconcile the competing values of organizational commitment in the public sector, by formulating three general hypotheses. First, the greater an individual's public service motivation, the more likely the individual will seek membership in a public organization. Second, research positively links public service motivation with performance. Finally, organizations with members who have a high degree of public service motivation will be less dependent on utilitarian incentives to manage performance. Thus, one may be able to infer from the results of this study that absent profit motivation, involvement and public service motivation exhibit similar patterns across sector when it comes to organizational entrepreneurship. That is, public service motivation may adequately replace a perceived *need* for profit motivation, in order to reconcile a comprehensive theory of public sector entrepreneurship.

Studies by Brewer and Selden (2000) confirm that "high-involvement" public agencies tended to perform better than "low-involvement" agencies. Borins (2002; 1998) finds evidence suggesting that where there are collaborative and autonomous environments, which are characterized by high organizational commitment, employees tend to engage in more frequent instances of innovative behavior. What ultimately

matters is that although public organizations may operationalize involvement and commitment differently, the outcomes are quite similar.

Overall, results of the Involvement hypothesis are consistent with prior research, specifically supporting Borins, Brewer and Selden, and Kim. Whereas previous authors sought to reconcile organizational involvement—or commitment—with positive performance, the findings from this study imply that Federal organizations with a high level of commitment are likely to also have a greater capacity for entrepreneurial behaviors.

Mission

The scale, Mission, assesses organizational members' perceptions of strategic direction and intent, goals and objectives, vision, and autonomy. Theory holds that organizations with a clear sense of purpose and vision for the future have strong missions, which are positively correlated with performance (Mintzberg 1973; Selznick 1949). However, the relationship with organizational entrepreneurship is entirely different. Generally, scholarship shows that strong mission tends to affect members' ability to identify new opportunities—i.e., “miss the boat” (M. Morris and Kuratko 2002; J. Wilson 1989, 109).

Some evidence suggests an inverse relationship between mission and innovation. According to Wilson (1989), public organizations, where a sense of mission is strong, and there is substantial support from political superiors, resistance to innovation is high. That is, an organization with a strong sense of mission is likely to be resistant to new tasks and new ways of doing things. This study hypothesizes that formal rules and

resistance to innovation will result in a negative correlation between Mission and perceptions of entrepreneurship. Table 26 provides the Mission hypotheses and results.

Table 26: Mission Hypothesis and Results

		Innovation	Proactiveness	Entre. Orientation
Mission	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	+	+	+
Mission*Supervisory	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	+ (Not Sig)	- (Not Sig)	- (Not Sig)

The results indicate that organizational Mission is positively correlated with Proactivity, Innovation and Entrepreneurial Orientation. These findings do not support the hypothesis and provide evidence supporting the notion that organization's with strong mission orientations are not resistant to change and innovation (J. Wilson 1989). These results tend to support findings from the organizational effectiveness literature, rather than the literature on public administration.

Interestingly, the results seem to suggest that a strong sense of mission may increase respondents' perceptions of proactiveness and innovativeness. This implies that strong mission-oriented agencies may be more active in searching for new opportunities than agencies with weak missions. One possible explanation is that a strong and clear sense of mission may provide organizational members' with a set of 'boundaries' that define the scope and range of proactiveness. For example, it is nearly impossible for organizational members' to be proactive in searching for solutions when there is

ambiguity surrounding the organizational goals, objectives, and strategic vision. In this sense, strong organizational mission may instill a high degree of clarity and creates a focusing effect, which supports proactiveness and innovativeness.

The value of clear mission statements to public agencies is still somewhat of an enigma as research continues to empirically test various aspects of mission with organizational performance (Chun and Rainey 2005; Weiss and Piderit 1999; Moynihan and Pandey 2005; Stazyk and Goerdel 2011). Generally, scholarship finds that organizations with ambiguous missions typically have decreased organizational performance compared to those with clearer missions. For example, Chun and Rainey (2005, 532) develop a measure of “mission comprehension ambiguity,” which finds negative correlations with performance. Also, strong organizational mission helps to solidify and bolster members’ organizational commitment (J. Wilson 1989; Weiss and Piderit 1999; Chun and Rainey 2005).

Introducing the supervisory status interaction term produced insignificant correlations with Innovativeness, Proactiveness, and Entrepreneurial Orientation. One explanation is that members with supervisory or managerial status have a greater degree of autonomy and a wider scope of intentions than non-supervisory members (Kingsley and Reed 1991). In this respect, their sense of mission varies a great deal compared to front-line employees. Overall, the results imply that a strong sense of mission does not necessarily need to inhibit the capacity for entrepreneurial behaviors.

Consistency

Consistency assesses an index of core values, agreement, coordination, and integration. Generally, organizations with higher levels of consistency and integration are more effective at performing core tasks, due to a relatively high degree of formalized rules and procedures (Schein 2004; Saffold III 1988). This also implies a relatively high degree of inflexibility. Generally, consistency is thought to produce bureaucratic controls through an increase in formal rules, procedures, and structures over time. As a result, the organization is less likely to innovate and less likely seek to new methods for performing organizational tasks (Buchanan 1975; Downs 1967; Golden 2000; Moon 1999). To be clear, consistency should not be confused with red tape. An organization can be consistent without having an overabundance of red tape and bureaucratic procedure. The third hypothesis suggests that consistent organizations are orientated towards stability and direction, rather than adaptability and change, and thus likely to perceive strong levels of innovativeness and proactiveness. Table 27 provides the hypotheses and results.

Table 27: Consistency Hypothesis and Results

		Innovation	Proactiveness	Entre. Orientation
Consistency	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	+	-	+
Consistency*Supervisory	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	- (Not Sig)	-	-

The results indicate that Consistency is negatively correlated with Proactiveness, but positively correlated with Innovation and Entrepreneurial Orientation, which only

partially supports the hypothesis. This finding tends to support prior research that consistent organizations may have less room to be proactive. For example, consistency implies an optimal level of integration and coordination across the organization. Thus, if members view an organization as consistently effective, then members will not likely need to search for alternative methods of accomplishing core tasks.

The positive correlation with innovation is an interesting finding, and implies that organizational consistency is an enabler of innovativeness. One may be able to infer that organizational consistency creates a “focusing” effect, whereby employees innovate within the bounds of established procedures, but do not proactively search for opportunity. This theory does not violate assumptions that innovativeness and proactiveness can be mutually exclusive. In a consistent organizational environment, there may be expressed need to be innovative—in the sense of being creative and finding novel solutions—but not proactive. Proactiveness implies an inclination to “predict” rather than “react.” Of course, the demand for proactiveness is relatively low in an organization that produces consistent outcomes. It is important to distinguish the effects of formal rules and procedures from red tape—where formal rules and procedures tend to be positively correlated with performance, while red tape is negatively correlated with performance.

Anecdotal evidence and sweeping political rhetoric have long considered formal rules and procedures within public organizations as synonymous with red tape and goal ambiguity (Dahl 1947; Lindblom 2001; Downs 1967; Warwick 1978). However, empirical studies show that red tape formation and its relationship to the goal ambiguity hypothesis is not a unique phenomenon in public agencies (Rainey, Pandey, and

Bozeman 1995, 571; Bozeman 1993; Bozeman, Reed, and Scott 1992). Moreover, “formal rules and procedures” does not always lead to red tape. Most management literature seems to hold that within any given public organization, formal rules and procedures harmonize effectiveness up to a certain point. DeHart-Davis and Pandey (2005) show that formalization tends to have mitigating effects on the consequences of organizational red tape.

Alternatively, literature within New Public Management finds that the effects of too much red tape and procedural complexity can severely confound organizational commitment and performance (Pandey, Coursey, and Moynihan 2007; Pandey and Moynihan 2006; Pandey and Kingsley 2000; Pandey and Scott 2002). For example, Pandey et al (2007) provide evidence, from a multi-method study, that red tape within human resource systems has a negative effect on organizational effectiveness. Interestingly, the authors also find that a developmental dimension of culture has mitigating effects on red tape.

Introducing the interaction term changed the relationship to Innovation and Entrepreneurial Orientation from positive to negative. Thus, being a supervisor has a negative relationship with perceptions of proactiveness, innovation, and entrepreneurial orientation. The effect of the interaction term supports the notion that supervisors tend to perceive their roles as “enforcers” of bureaucratic control mechanisms (Ouchi 1981; Downs 1967).

Other explanations, such as varying belief systems, could help explain the results of the interaction term. For example, according to Wilson (1989) organizational members

in a managerial capacity may view any change, especially within a consistent culture, as a significant risk. This would help to explain the negative correlations with the interaction terms. Also, implementing innovative ideas within a consistent culture may prove challenging to managers and supervisors. Wilson (1989, 231) states, “ Tasks that are familiar, easy, professionally rewards, or well adapted to the circumstances in which the operators find themselves will be preferred because performing them is less costly than undertaking tasks that are new...”

Adaptability

The adaptability scale represents an orientation towards organizational change, personnel flexibility, and learning. It is important to note that an adaptable organization is not the antithesis of a consistent organization. Although the two dimensions appear to be a set of competing values, theory holds that an organization can, and should, contain elements of all four cultural variables. Recall that adaptability, involvement, mission, and consistency all exhibited relatively high correlation with each other. Defined further, specifically in a public sector context, adaptability refers to the ability of organizational members to go “beyond” the formal rules and constraints to meet discrete or unconventional sets of challenges. This is sometimes pseudo-synonymous with a “flexible” organization. That is, flexible and adaptable organizations are more likely to have higher levels of organizational commitment, less overall red tape, greater instances of innovative behavior, and a better ability to meet external demand with internal change (Bozeman and Kingsley 1998; Senge 2006; Katz and Kahn 1966).

The fourth hypothesis suggests that adaptable agencies are better suited to affect institutional change, either externally or internally by implementing results-oriented management reforms—likely leading to less red tape, adequate communication, job enrichment, and overall better organizational commitment (Kaifeng Yang and Pandey 2009, 352–353). As a result, the organization is better suited to support innovative and proactive activities, leading to greater perceptions of entrepreneurial orientation. Therefore, an adaptable organization will be positively associated with higher levels of perceived innovativeness, proactiveness, and entrepreneurial orientation. Table 28 provides the hypotheses and results.

Table 28: Adaptability Hypothesis and Results

		Innovation	Proactiveness	Entre. Orientation
Adaptability	<i>Hypothesis</i>	+	+	+
	<i>Result</i>	+	+	+
Adapt*Supervisory	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	-	+	-

The results show that Adaptability is positively correlated with perceptions of Proactivity, Innovation, and Entrepreneurial Orientation. In the regression models, adaptability has the strongest effect on Innovation, compared to its effects on Proactiveness and Entrepreneurial Orientation. This finding supports the hypothesis, and is consistent with the salient base of literature.

One critical component of organizational adaptability is managements' flexibility with personnel decisions. Higher perceptions of personnel flexibility and job enrichment are positively associated with goal clarity, communication adequacy, flexible structures, and the autonomy to pursue innovative solutions (Kaifeng Yang and Pandey 2009; Feeney and Rainey 2010). Generally, research finds that perceptions of personnel flexibility and enrichment in the public sector are lower than those in the private sector (Lonti and Verma 2003; Feeney and Rainey 2010).

Introducing the supervisory status integration term causes the correlation with Proactivity to remain the same, but the correlations with Innovation and Entrepreneurial Orientation to become negative. Additionally, supervisory status decreases the overall correlation effect on Proactiveness, compared to Adaptability without the interaction term. This is consistent with the findings on organizational Consistency. That is, management is generally less inclined to pursue new activities outside the scope of the core organizational task. Although being a supervisor was not negatively correlated with Proactiveness, it did somewhat reduce the overall effect.

Organizational Control and Focus Dimensions

According to Denison's framework, Adaptability, Mission, Involvement, and Consistency are elements of a multidimensional model, which contrasts organizational control (flexibility versus stability) and organizational focus (internal versus external focus). Adaptability and Mission are factors within the external orientation, while Involvement and Consistency are factors within the internal orientation. On the control dimension, Adaptability and Involvement are factors of flexible organizations, while

Mission and Consistency are factors of a stable organization (Denison and Mishra 1995, 216).

Denison bases his framework on Quinn and Rohrbaugh's (1983) research, which constructs a competing values approach to organizational effectiveness. Quinn and Rohrbaugh use a three-dimensional model of organizational effectiveness. As previously discussed in the literature review, almost all organizational effectiveness research uses some iteration of the multidimensional approach. This research expects that externally oriented organizations will be positively correlated to perceptions of Innovation, Proactiveness, and Entrepreneurial Orientation, while internally oriented organizations will be negatively correlated to perceptions of Innovation, Proactiveness, and Entrepreneurial Orientation. Also, stable organizations will be negatively correlated to perceptions of Innovation, Proactiveness, and Entrepreneurial Orientation, while flexible organizations will be positively correlated to perceptions of Innovation, Proactiveness, and Entrepreneurial Orientation. Table 29 provides the hypotheses and results.

Table 29: Control and Focus Hypothesis and Results

		Innovation	Proactiveness	Entre. Orientation
Internal	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	+	-	+
External	<i>Hypothesis</i>	+	+	+
	<i>Result</i>	-	+	-
Flexible	<i>Hypothesis</i>	+	+	+
	<i>Result</i>	+	+	+

Stable	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	-	-	-

Current studies suggest that external political support can positively or negatively affect innovative and entrepreneurial behaviors, as the organization attempts to interpret external signals to affect internal change (Y. Kim 2010; Kaifeng Yang and Pandey 2009; Borins 1998). That is, an organization's degree of adaptability is a reflection of that organization's ability to meet the demands of its external stakeholders. Yang and Pandey (2009) test the basis of this concept, and show that political support from elected officials is positively associated with internal management reform efforts.

This study found that externally oriented organizations, which are characterized by higher perceptions of goal clarity (mission) and greater capacities to learn (adaptability), are positively correlated with perceptions of Proactiveness, and negatively correlated with perceptions of Innovation and Entrepreneurial Orientation. These findings are potentially consistent with Bessant (2005) and Denison's (1995) studies, which suggest that learning is important to translating organizational demands, as well Yang and Pandey's (2009) generalization that alertness to external signals is necessary to facilitate internal change. The negative correlations with Innovation and Entrepreneurial Orientation are not consistent with the hypothesis. One explanation is that in public agencies, externally oriented organizations will focus on remaining alert and interpreting external signals, primarily from political stakeholders. This, in turn, likely leaves little room to focus on innovation. Moreover, depending on the level of political interest,

organizations may resist innovative activities in lieu of adequately meeting core organizational tasks.

This study finds that Internal orientation, which is a characterization of high perceptions of organizational commitment (involvement) and a high degree of formal rules and procedures, to be negatively correlated with Proactiveness, and positively correlated with Innovation, and Entrepreneurial Orientation. Internally oriented perceptions have less of an impact on proactiveness and a higher impact on innovation, than externally oriented organizations. This is likely due to the political pressures that externally oriented organizations remain alert to—explaining the larger impact on proactiveness. Conversely, elements of the goal ambiguity hypothesis help explain the positive correlations with innovation. That is, internally oriented organizations will likely have a greater focus on clear organizational goals and objectives, which are known to be positive correlates of organizational effectiveness (Chun and Rainey 2005). Additionally, this is consistent with prior research that holds there is a greater degree of risk taking when there are high levels of organizational goal clarity (Bozeman and Kingsley 1998, 109; Teske and Schneider 1994).

Generally, almost all research on public sector innovation and entrepreneurship has found that flexible organizations tend to be more entrepreneurial (Y. Kim 2010; Pandey, Coursey, and Moynihan 2007; Lonti and Verma 2003; Denison and Mishra 1995; Feeney and Rainey 2010). This study's conception of flexibility, which is comprised of perceptions of learning (adaptability) and organizational commitment (involvement), was found to be strongly correlated with Proactiveness, Innovation, and

Entrepreneurial Orientation. These results are consistent with Lonti and Verma's (2003) study, which found that elements of job enrichment and information sharing occurred in more frequently in innovative private sector firms. Additionally, these findings support Feeney and Rainey's (2010) research that lower perceptions of personnel flexibility in public organizations led to lower levels of internal change and less instances of innovative behaviors.

Finally, this research finds that a stable orientation, which is characterized by high perceptions of organizational goal clarity (mission) and a high degree of formal rules and procedures (consistency), is negatively correlated with proactiveness, innovation, and entrepreneurial orientation. These findings support the hypothesis that a stable organization is negatively correlated with perceptions of entrepreneurship. Interestingly, these findings are inconsistent with prior research, which demonstrates goal clarity to be positively related to organizational effectiveness and innovative behaviors (Chun and Rainey 2005). Stable organizations are generally more resistant to change, which would likely lead to lower perceptions of innovation and proactiveness.

Demographic Variables

This study includes a set of control variables to determine the demographic effects on perceptions of entrepreneurship. Specifically, this study uses Age, Supervisory Status, Pay Category, Government Tenure, Sex, Minority Status, and Cabinet-level Agency as the primary demographic variables. Table 30 provides the control variable hypotheses and results.

Table 30: Control Variables Hypothesis and Results

		Innovation	Proactiveness	Entre. Orientation
Supervisory Status	<i>Hypothesis</i>	+	+	+
	<i>Result</i>	+	+	+
Age	<i>Hypothesis</i>	No Effect	No Effect	No Effect
	<i>Result</i>	+	+	+
Pay Category	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	+ (Not Sig)	-	+
Gov. Tenure	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	+	-	+
Gender	<i>Hypothesis</i>	No Effect	No Effect	No Effect
	<i>Result</i>	+	+	+
Cabinet	<i>Hypothesis</i>	-	-	-
	<i>Result</i>	-	+	-
Minority Status	<i>Hypothesis</i>	No Effect	No Effect	No Effect
	<i>Result</i>	+	-	+

As a main effect, the results confirm the hypothesis, that supervisory status is positively correlated with perceptions of Innovation, Proactiveness, and Entrepreneurial Orientation. This is consistent with research that suggests autonomy may increase innovativeness, as well as alertness to new opportunities.

As discussed in the methods section, Age is positively correlated with Supervisory Status. Therefore, this study hypothesizes that Age is positively correlated with perceptions of entrepreneurship. Although the findings support the hypothesis, the correlations are relatively weak, and indicate that age is not a good predictor of perceptions of entrepreneurship.

This study hypothesizes that Pay Category is also associated with a respondents Age and Supervisory Status, and therefore positively correlated with perceptions of entrepreneurship. The results were not significant, indicating that Pay Category does not have an effect on perception of entrepreneurship.

This research suggests that Government Tenure has a negative correlation with Proactiveness, Innovation, and Entrepreneurial Orientation. The results indicate a negative correlation with Proactiveness, but weak positive correlations with Innovation and Entrepreneurial Orientation. One possible explanation is that while tenure does not reduce a respondent's capacity to be innovative, the respondent may be more entrenched in the organization's formal rules, procedures, and ways to accomplishing core tasks. Thus, the respondent is less likely to look for new ways of accomplishing agency tasks.

Although this research hypothesizes that gender has no effect on perceptions of entrepreneurship, this study found a positive correlation with perceptions of Proactiveness. The correlations with Innovation and Entrepreneurial Orientation were found to be not statistically significant, which supports the hypothesis. There is currently no significant research that supports why gender would be a factor in perceptions of proactiveness.

Like gender, this study suggests that Minority Status has no effect on perceptions of entrepreneurship. However, the results show minority status to have a slightly negative correlation with Proactiveness, and slightly positive correlations with Innovation and Entrepreneurial Orientation. Current research does not account for this finding.

Respondents working for cabinet-level agencies made up approximately 86% of the study. Generally, cabinet-level agencies have large budgets, diverse sets of goals, and more employees than non-cabinet agencies. This study hypothesizes that cabinet-level agencies are negatively correlated with perceptions of entrepreneurship, because large agencies are generally resistant to change. The results did not find a statistically significant relationship with Proactiveness, but did find a negative relationship with Innovation and Entrepreneurial Orientation. These results confirm the hypothesis, and are consistent with prior research that organizational size is not a contributing factor to effectiveness (Y. Kim 2010; S. Kim 2005; Y. Kim 2007).

Underlying Assumptions and Limitations

Although there is a great swath of empirical research that tests public-private organizational differences (Rainey and Bozeman 2000, 448), few studies empirically test management approaches to entrepreneurial perceptions with the Federal sector. Therefore, this study relies on a set of underlying assumptions that are consistent with grounded theory and empirical findings from previous organizational studies.

First, this study assumes that all organizations have elements of structure, environment, and culture that are observable through latent constructs (Khademian 2002; Schein 2004; Denison and Mishra 1995; Rainey and Bozeman 2000; J. Wilson 1989; Denhardt 2008). However, this study acknowledges the complexity of organizational “life,” and does not assume that each latent construct occurs in a vacuum (Pacanowsky and O’Donnell-Trujillo 1982). Moreover, the boundaries of organizational mission, consistency, involvement, and adaptability are not always well defined. Although this

study recognizes the importance of these inter-relationships, this study does not empirically test for inter-dependencies.

Second, this study assumes that entrepreneurial activity is potentially present across organizational levels. Both front-line and management can perceive innovation and proactiveness, albeit through slightly different processes. For example, management and front-line employees will view accountability from different perspectives. To account for different processes, this study uses managerial and pay-level control variables.

This study is not without limitations. First, the unit of analysis is at the individual level, but generalizes relationships between organizational factors and perceptions of entrepreneurial activity across the entire Federal sector. In this respect, this study does not distinguish between agencies, sub-agencies, sub-units, or specific work tasks. Second, the individual-level survey responses can be inherently vulnerable to participant bias. Third, this study does not make determinations as to the effects of entrepreneurial orientation on organizational performance. Fourth, the data represents a cross-segment of participants' perceptions in 2012. Therefore, the study does not take into effect any changes that may or may not occur over time.

Finally, this research uses a reflective construct of organizational factors and perceptions of entrepreneurial orientation. Because conducting a Government-wide survey is not feasible, this research "simulates" the DOCM by using a previously administered Federal survey, which closely tracks the DOCM constructs. Although the simulated constructs are statistically sound, one should not interpret them as concrete findings, but as general guideposts.

CHAPTER SEVEN: CONCLUSIONS AND IMPLICATIONS

Early in the discussions on public sector entrepreneurship, Peter Drucker (1985) held that corporate entrepreneurship is a universal construct, and should not be limited to a private sector phenomenon. The results from this research provide evidence to further support the idea of a universal construct of corporate entrepreneurship. Using the DOCM constructs as measures for latent organizational variables (structure, culture, environment), this study found that Mission, Adaptability, Involvement, and Consistency traits have an effect on perceptions of entrepreneurial activity, which are generally consistent with salient findings from business management literature.

Moving away from a preoccupation with ‘bureaucracy’ in American public administration scholarship is paramount to meeting emerging needs. While significant differences exist, research is increasingly dispelling common assumptions and promoting creative and innovative solutions to effectiveness in the public sector. Herbert Simon was ahead of his time, with his characterization of “administrative man” and the effects of organizational environment on decision-making (Simon 1965). However, Simon’s prescription for greater hierarchy and formalization misses the mark to meet today’s challenges. A priori assumptions regarding organizational commitment, mission, culture, environment, external stakeholders, and outcomes must evolve to meet increasingly complex challenges that public organizations face (Kearney, Hisrich, and Roche 2009).

The objective of this research was twofold. First, this study used an organizational approach to test variables representative of structure, culture, and environment on Federal employees' perceptions of proactiveness and innovativeness. This approach identified statistically significant relationships between underlying organizational traits and perceptions associated with entrepreneurial activity (innovativeness and proactiveness). At a broad level, the results imply that modern public organizations should strategically consider how organizational elements might constrain or promote entrepreneurial activity among its employees. Second, this research provides empirical evidence to support underlying theoretical frameworks consistent with scholarly research on public sector management. These results provide evidence to support the NPM research agenda, and counter the continued use of the Wilsonian and "administrative man" paradigms in public management.

Implications for Future Research

As the discussion of public sector entrepreneurship moves forward, future research will need to better reconcile perceptions of entrepreneurship with actual entrepreneurial events. This will require a general shift away from making determinations about the state of entrepreneurship within the public sector, and begin identifying and cataloging entrepreneurial typologies, as suggested by Potts and Kastle (2010). Using mixed-method approaches, such as combining survey and deep organizational ethnographic research, will help bring a richness that current empirical research lacks. However, in increasingly austere budget environments, government agencies are reluctant to devote scarce resources to non-core tasks and activities.

Future research will also need to continue to refine the definition of public sector entrepreneurship. Although new studies, including this one, suggest a universal construct of corporate entrepreneurship, major differences still exist. For example, few studies have approached how public sector outcomes and private sector outputs alter the definition of corporate entrepreneurship. The general boundaries of public sector entrepreneurship still tend to form around process improvement and red tape reduction (Bernier and Hafsi 2007), while ignoring aspects such as learning and collaboration. As academics refine these definitions, they should take care to not over specify analytical models and frameworks, while maintaining clear linkages to grounded theory. For example, this study used four variables to describe multiple dimensions on the competing values framework, whereas other studies have used more than fifteen variables to describe similar concepts.

From the practitioners' perspective, the management of entrepreneurship in government will be of great interest. Inevitably, practitioners will want to create "entrepreneurial" organizations within government, with the hopes of increasing performance. However, this perspective should be viewed with cautions, as there are still no specific images of what an effective, or high performing, government agency may look like. Most research seems to indicate that performance is agency-specific, primarily due the lack of readily measurable outputs.

Interestingly, very few academics have questioned the utility of an "entrepreneurial administration." The prevailing assumption has been that entrepreneurship is good for corporations, therefore it is good for government agencies.

However, it is important to remember that a lack of innovation has rarely, if ever, led to the downfall of a public government agency. Wilson (1989, 227) makes an interesting observation, stating, “The Ford Motor Company should not have made the Edsel, but if the government had owned Ford, it would still be making Edsels.” Wilson’s implication is that market signals provide quick feedback to bad innovations in the private sector. However, the lack of clear market signals in public agencies would likely lead to wasting taxpayer dollars.

Globally, public sector budgets comprise between 20% and 50% of GDP (Potts and Kastle 2010). While there will also be concern about putting tax-payer dollars at unnecessary risk, there is also a clear need for an entrepreneurial public service motivation. “Doing more with less” seems to have become the banner mantra for every government administration reform and transformation effort since the National Performance Review. Through much fanfare, these reform efforts have rarely culminated in much more than structural changes and temporary reductions in red tape. Unfortunately, reform efforts will likely continue to place premiums on reducing red tape and structural reform, rather than creative solutions to improving the way government works. Superficial change has an immediate satisfaction allure that cultural change cannot match.

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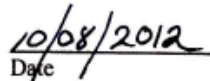
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No.	Agency
1	United States Department of the Air Force
2	Department of Agriculture
3	National Endowment for the Arts
4	National Endowment for the Humanities
5	Institute of Museum and Library Services
6	U.S. Agency for International Development
7	United States Department of the Army
8	Federal Labor Relations Authority
9	Merit Systems Protection Board
10	Defense Nuclear Facilities Safety Board
11	Pension Benefit Guaranty Corporation
12	Office of Management and Budget
13	US Access Board
14	Department of Commerce
15	Commodity Futures Trading Commission
16	National Credit Union Administration
17	OSD, Joint Staff, Defense Agencies, and Field Activities
18	Department of Justice
19	Department of Labor
20	Department of Energy
21	Federal Energy Regulatory Commission
22	Export-Import Bank of the United States
23	Department of Education
24	Equal Employment Opportunity Commission
25	Environmental Protection Agency
26	Trade and Development Agency
27	Federal Communications Commission
28	Chemical Safety and Hazard Investigation Board

29	Federal Mediation and Conciliation Service
30	Court Services and Offender Supervision Agency
31	Federal Trade Commission
32	U.S. Office of Special Counsel
33	Overseas Private Investment Corporation
34	U.S. Office of Government Ethics
35	General Services Administration
36	International Boundary and Water Commission: U.S. and Mexico
37	Department of Health and Human Services
38	Federal Housing Finance Agency
39	Advisory Council on Historic Preservation
40	Department of Homeland Security
41	Department of Housing and Urban Development
42	Broadcasting Board of Governors
43	Inter-American Foundation
44	National Indian Gaming Commission
45	Department of the Interior
46	Kennedy Center
47	Corporation for National and Community Service
48	Federal Election Commission
49	Federal Maritime Commission
50	National Science Foundation
51	National Labor Relations Board
52	National Mediation Board
53	National Aeronautics and Space Administration
54	National Capital Planning Commission
55	National Archives and Records Administration
56	Nuclear Regulatory Commission
57	United States Department of the Navy
58	Office of Personnel Management
59	Occupational Safety and Health Review Commission
60	Postal Regulatory Commission
61	Office of Navajo and Hopi Indian Relocation
62	Federal Retirement Thrift Investment Board
63	Railroad Retirement Board
64	Small Business Administration

65	Securities and Exchange Commission
66	Small agencies with few respondents
67	Consumer Product Safety Commission
68	National Gallery of Art
69	Selective Service System
70	Department of State
71	Woodrow Wilson International Center for Scholars
72	Social Security Administration
73	National Transportation Safety Board
74	U.S. International Trade Commission
75	Department of Transportation
76	Office of the U.S. Trade Representative
77	Department of the Treasury
78	Surface Transportation Board
79	Department of Veterans Affairs

APPENDIX 3: DOCM SCALES AND SURVEY ITEMS

Adaptability

1. All members have a deep understanding of customer wants and needs
2. Attempts to create change usually meet with resistance
3. Customer comments and recommendations often lead to changes
4. Customer input directly influences our decisions
5. Different parts of the organization often cooperate to create change
6. Innovation and risk taking are encouraged and rewarded
7. Learning is an important objective in our day-to-day work
8. Lots of things fall between the cracks
9. New and improved ways to do work are continually adopted
10. The interests of the customer often get ignored in our decisions
11. The way things are done is very flexible and easy to change
12. We encourage direct contact with customers by our people
13. We make certain that the right hand knows what the left hand is doing
14. We respond well to competitors and other changes in the business environment
15. We view failure as an opportunity for learning and improvement

Consistency

1. Ignoring core values will get you in trouble
2. It is easy to coordinate projects across different parts of the organization
3. It is easy to reach consensus even on difficult issues
4. Our approach to doing business is very consistent and predictable
5. People from different parts of the organization share a common perspective
6. The leaders and managers practice what they preach
7. There is a characteristic management style and a distinct set of management practices
8. There is a clear agreement about the right way and the wrong way to do things
9. There is a clear and consistent set of values that governs the way we do business
10. There is a strong culture
11. There is an ethical code that guides our behavior and tells us right from wrong
12. There is good alignment of goals across levels

13. We often have trouble reaching agreement on key issues
14. When disagreements occur we work hard to achieve win-win solutions
15. Working with someone from another part of this organization is like working with someone from a different organization

Involvement

1. Authority is delegated so that people can act on their own
2. Business planning is ongoing and involves everyone in the process to some degree
3. Cooperation across different parts of the organization is actively encouraged
4. Decisions are usually made at the level where the best information is available
5. Everyone believes that he or she can have a positive impact
6. Information is widely shared so that everyone can get the information he or she needs when it's needed
7. Most employees are highly involved in their work
8. People work like they are part of a team
9. Problems often arise because we do not have the skills necessary to do the job
10. Teams are our primary building blocks
11. Teamwork is used to get work done rather than hierarchy
12. The bench strength (capability of people) is constantly improving
13. The capabilities of people are viewed as an important source of competitive advantage
14. There is continuous investment in the skills of employees
15. Work is organized so that each person can see the relationship between his or her job and the goals of the organization

Mission

1. Leaders have a long-term viewpoint
2. Leaders set goals that are ambitious but realistic
3. Our strategic direction is unclear to me
4. Our strategy leads other organizations to change the way they compete in the industry
5. Our vision creates excitement and motivation for our employees
6. People understand what needs to be done for us to succeed in the long run
7. Short-term thinking often compromises our long-term vision
8. The leadership has gone on record about the objectives we are trying to meet
9. There is a clear mission that gives meaning and direction to our work
10. There is a clear strategy for the future
11. There is a long-term purpose and direction
12. There is widespread agreement about goals
13. We are able to meet short-term demands without compromising our long-term vision

14. We continuously track our progress against our stated goals
15. We have a shared vision of what the organization will be like in the future

APPENDIX 4: HUGHES AND MORGAN ENTREPRENEURIAL ORIENTATION SURVEY ITEMS

Innovativeness

1. Our business is creative in its methods of operation.
2. Our business sees out new ways to do things.
3. We actively introduce improvements and innovations to our business.

Proactiveness

1. We always try to take the initiative in every situation.
2. We excel at identifying opportunities.
3. We initiative actions to which other organizations respond.

Risk-taking

1. Our business emphasizes both exploration and experimentation for opportunities.
2. People in our business are encouraged to take calculated risks with new ideas.
3. The term 'risk-taker' is conserved a positive attribute for people in our business.

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