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A Method to Determine an Organization's Compatibility with Hybrid Workspaces

Richard T. Ellis

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THESIS

Richard T. Ellis, Captain, USAF

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AIR UNIVERSITY

AIR FORCE INSTITUTE OF TECHNOLOGY

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A METHOD TO DETERMINE AN ORGANIZATION'S COMPATIBILITY WITH
HYBRID WORKSPACES

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Richard T. Ellis, BS

Captain, USAF

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A METHOD TO DETERMINE AN ORGANIZATION'S COMPATIBILITY WITH HYBRID WORKSPACES

Richard T. Ellis, BS

Captain, USAF

Approved:

//signed//	17-03-14
Alfred E. Thal, Jr., PhD (Chairman)	Date

//signed//	12-03-14
Brent T. Langhals, Lt Col, USAF, PhD (Member)	Date

//signed//	13-03-14
John J. Elshaw, Lt Col, USAF, PhD (Member)	Date

//signed//	13-03-14
Bert D. Liddell, Capt, USAF, MS (Member)	Date

Abstract

Facing fiscal constraints, organizations should investigate new ways to ensure their weapons, equipment, facilities, and personnel operate with improved efficiency. The adoption of hybrid workspaces offers a unique solution to improve both space utilization and workplace efficiency. The premise behind hybrid workspaces is that workspaces are not assigned to individuals; instead, a variety of different work areas are designated to allow individuals to choose where they accomplish their work-related tasks.

However, hybrid workspaces are still an emerging concept and represent a radical departure from traditional workplace setups. Current use of hybrid workspaces falls primarily in the private sector and there is no research available to suggest if hybrid workspaces may or may not benefit the Air Force. This research investigated the Air Force's culture to determine if it may be feasible for the service to adopt hybrid workspaces. This research developed a method that was used to analyze an Air Force organization's culture to determine if the organization may be compatible with hybrid workspaces. The results show that some Air Force organizations may indeed have a favorable environment to a move toward the utilization of these types of spaces. As this research represents the first iteration of such a method, more research is required to determine feasibility. Once matured, the method can prove useful in assessing organizations to determine which areas leadership should pay attention to if they are looking to move forward and adopt hybrid workspaces.

Dedication

To my amazing wife & puppy-loving son

Acknowledgements

I would like to thank the members from Air Force Civil Engineer Center's P&I and Finance Directorates who took the time out of their schedule to participate in this research's interviews. I would also like to thank my sponsors, Rick Sinkfield and Sandra Warner for their help and wisdom. Finally, I thank my thesis advisor, Dr. Al Thal and committee members, Lt Col Brent Langhals, Dr. John Elshaw, and Capt Bert Liddel for their insights and guidance to help make this research possible.

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A METHOD TO DETERMINE AN ORGANIZATION'S COMPATIBILITY WITH HYBRID WORKSPACES

I. Introduction

Modern workplaces evolved out of managerial concepts developed in the mid 1950s (Hammer & Champy, 1988). While tools and electronic business initiatives have improved the speed of communication in the workplace, the physical layout of the workplace is still centered around the traditional concept of assigning individuals to specific spaces. Each member's workload and types of work are becoming more dynamic as the result of maintaining the same workload with fewer people in organizations. However, the spaces that members are assigned do not fully accommodate different types of workload. Is there a way to re-engineer traditional workplaces to meet the needs of employees' dynamic variety of tasks?

Due to the nature of today's work, members need various places to accomplish work and only reside in their assigned office space a fraction of the time. Instead of organizations forcing a single work style on their employees, it is possible to give members of organizations the flexibility to align their work style to their organizational needs by leveraging today's technology. For example, in urban planning, roads are not the sole means for transportation; sidewalks, railways, and bike paths are equally important to maximize capacity in the transportation system. Similar logic can be applied to organizational workspaces; to efficiently negotiate their variety of tasks, individuals should have the ability to choose which combination of tools and physical spaces they need to accomplish work. These workers have immediate

access to their coworkers and can easily communicate and collaborate with them whether they are physically present in the same room or remote locations.

The redesign of workplaces to hybrid workspaces is an emerging trend in the private sector; these workspaces provide a benefit of enhanced collaboration and have the secondary effect of reducing the space utilized by organizations. The research captured in this document attempted to determine if implementing hybrid workspaces is a viable solution to improve space utilization and workplace efficiency in the Air Force.

Background

Today's fiscally constrained climate is pushing the Air Force to reinvent itself to better serve its customers, the taxpayers. The Air Force is undertaking an effort to reduce its footprint by 20% by the year 2020 (United States Air Force, 2011). However, the current method to reduce space use is primarily accomplished by identifying underutilized space and placing members into smaller workspaces without consideration to how people work. A recent study has shown that an increase in space utilization efficiency can reduce space requirements by 28 percent by making per capita space requirements smaller (Maline, 2012). However, this method adds to the closed-off nature of work by reducing space that can be used for collaboration, extra rooms, conference rooms, and lobby areas. The effect is essentially reinforcing the same Air Force facility standards outlined in Air Force Manual 32-1084; there is no attempt to change the rules. According to the Bureau of Labor Statistics and the Air Force Personnel Center, a significant portion of the Air Force, conservatively figured to be 40%, completes tasks in support and administrative functions which require effective communication to successfully accomplish tasks; therefore, it is important to investigate how the Air Force can improve its space utilization

efficiency while enhancing communication and collaboration in the workplace (United States Air Force Personnel Center, 2013; Bureau of Labor Statistics, 2013).

Today's Air Force administrative work environment is often one of isolation, where six foot high cubicles and offices are found in most environments and spaces are traditionally viewed as a one-to-one relationship with members. These traditional environments reduce the worker's ease of accessibility to their coworkers and the likelihood that face-to-face communication will occur (Penn, Desyllas, & Vaughan, 1999). When individuals work in isolation, job performance suffers (Golden, Viega, & Dino, 2008).

To solve this problem, many organizations have adopted an open concept layout where employees are assigned to cubicles with lower partitions to promote communication. However, placing members into open working environments can also degrade communication and productivity because of distractions such as noise and interruptions. Furthermore, while organizations may improve collaboration, this does not change the fact that individuals are not in their space 100 percent of the time; typically, it is less than 50 percent of the time because they are engaged with other co-workers or in meetings (Seidel & Ye, 2012). As a result, assigning people to open environments is similarly inefficient. While both of these space arrangements may be convenient to either the employee or the organization's leadership, beneath the surface, the organization suffers from a productivity standpoint. Since the distance needed to connect employees increases, communication is further degraded in open concept space arrangements (Laing, Craig, & White, 2011).

Workspaces in which team members are physically dispersed face another communication gap as those employees who work more than 30 meters away might as well be several miles apart (Allen,1977). This distance from other team members has a detrimental

effect and is negatively correlated with productivity, job satisfaction, and organizational commitment (Wolfeld, 2010). Therefore, if one can remove the distance barriers in the work environment, the members of an organization are more likely to engage in face-to-face interactions both physically and virtually. By maximizing interactions, productivity increases because the average distance between employees is reduced (Wolfeld, 2010). Face-to-face interactions are valuable, based on social presence theory, in that they help strengthen social network connections (Short, Williams, & Christie, 1976). Removing these barriers also increases the chance of impromptu interactions and, since members are more accessible, may lead to more productive workplaces (Wolfeld, 2010). Instead of addressing space utilization efficiency and organization communication separately, there is a need to jointly look at these two components of an organization when considering solutions to the Air Force's space utilization goal.

However, improving space efficiency may not result in a net benefit if it further hinders communication and collaboration. Since today's jobs are highly dynamic and different tasks require the right type of space to accomplish work, employees typically need to interact in a number of ways ranging from same-place and same-time interactions to different-times and different-places (Ellis, Gibbs, & Rein, 1991). Some tasks require quiet areas to promote focus, other tasks require interaction with team members to encourage the exchange of ideas, and some tasks require connecting to other individuals or teams around the world.

Hybrid workspaces represent a possible solution to improve space utilization and improve organizational efficiency. This workspace should help make distances between workers disappear ("Amplify your innovation," 2013). Giving choice to employees to choose their workspace, akin to a tool in a toolbox, helps shrink this distance. Hybrid workspaces allow employees to utilize different physical spaces as a tool to accomplish activities that align with

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organizational goals. Unlike singularly located spaces such as cubicles, offices, telework, home-working, and virtual-working, hybrid workspaces are multiply located, meaning individuals are not assigned to one single location and workspaces exist where work is accomplished (Halford, 2005). These spaces improve inefficient communication by removing traditional barriers, such as distance, walls, doors, and email between members in organizations. The workplace is a "virtualized and physical environment characterized by connections, collaboration, and user choice that enables the worker to be agiler and perform activities anywhere anytime" (IBM Center for Applied Insights, 2012). The successful implementation of hybrid workspaces in an organization usually yields between 30 to 40 percent reduction in space, and it is easy to see there can be significant benefits to considering this alternative (Skyrme, 1994). However, the focus of utilizing hybrid workspaces should be centered on the idea of improving work processes, not simply utilizing these spaces as a method to cut costs (Kunkle, 2000).

Hybrid workspaces reduce the overhead required to operate an organization by leveraging technology and multiple physical environments to eliminate communication gaps while enhancing workplace collaboration and productivity (Wolfeld, 2010). They also offer a fix for workplace satisfaction as employee choice can provide flexibility and enhance organizational effectiveness (Becker, 2002). While hybrid workspaces allow for enhanced satisfaction and performance, implementation is not simple. The idea of hybrid workspaces is relatively new, and limited academic research is available for describing the results of implementing this concept. However, case studies that have examined the success and failure of telework initiatives and other large organizational initiatives requiring change that can be used as a benchmark to determine the hurdles organizations must overcome to make the transition. Telework, working remotely, and *hot desking* work environments without assigned workspaces

are examples of similar radical change initiatives that organizations have accomplished. Hot desking is an office arrangement that offers a set number of unassigned office spaces. Members choose their seating based on availability and preferred location. Studies of change management strategies when implementing these large initiatives suggest failure is often the result of poor communication and resistance by management (Taskin & Edwards, 2007). While management and communication contribute to failure, both of these aspects are a reflection of the underlying culture of the organization. Culture is the ultimate reason for an organization's failure to change (McNabb & Sepic, 1995).

Culture can be described in various ways, but a meta-analysis that studied different cultural frameworks determined that organizational culture contains eight dimensions (Detert, Schroeder, & Mauriel, 2000). Of the dimensions defined by Detert et al. (2000), three are directly applicable to the organizational compatibility of hybrid workspaces. The dimensions of Change, Collaboration, and Control should be analyzed when trying to determine if hybrid workspaces can be implemented successfully.

Problem Statement

The purpose of this research was to develop and test a framework to assess the cultural compatibility of different organizations with hybrid workspaces. Compatibility should provide an indication as to whether hybrid workspaces can be utilized by a specific organization to improve space utilization and workplace efficiency. The framework was developed through the literature and then tested by conducting a qualitative analysis. The analysis measured and compared three dimensions of an organization's culture, Change, Collaboration, and Control, to a culture that the literature describes that best suits hybrid workspaces. A fully compatible culture

with hybrid workspaces has decentralized control, is receptive to a change in the workplace layout, and is one in which all tasks are collaborative.

Research and Investigative Questions

The framework was developed as a result of investigating the following research question: *How does an organization's culture demonstrate it is feasible to use hybrid workspaces to improve space utilization efficiency and organizational efficiency?* The research question was investigated by the following questions that describe the different cultural dimensions of Control, Collaboration, and Change. These investigative questions provided context to develop a method to determine compatibility.

    A. *How would hybrid workspace layouts support or oppose members' work styles?*

    B. *How would current managerial control change compared to traditional workspaces?*

    C. *How receptive would members be to a change towards hybrid workspace environments?*

Methodology

These research questions were answered through the use of a qualitative analysis of interviews with 17 individuals from two directorates at the Air Force Civil Engineer Center (AFCEC). The Plans and Integration (P&I) Directorate and the Finance Directorate presented an opportunity to study the potential compatibility of hybrid workspaces in the Air Force. The P&I directorate is a new organization that currently operates in a limited flexible working environment out of multiple large conference rooms. This presents the opportunity to gather opinions of flexible working without directly asking about flexible working and biasing the results. The Finance directorate is currently working in an open concept layout centered around

a teaming environment with assigned spaces. The finance directorate thus presents an opportunity to capture opinions of how individuals like to be grouped with others without introducing a bias when asking directly about hybrid workspaces. Both the P&I and Finance directorates operate out of a unique environment when compared to the rest of the Air Force and undergo frequent changes to their workplace while their leadership discovers the best configuration for the organization. This presented itself as an opportunity to study the effect of culture as it relates to workspace layout because opinions of the changes are fresh in the members' minds. Interviews of nine individuals from each organization were conducted from each directorate. These interviews were open-ended, and questions were asked to investigate the cultures without direct reference towards hybrid workspaces.

Interviews consisted of 22 questions, with 20 of these questions being open-ended and 2 designed to capture generational determinants. Each of the questions was derived from a set of questions developed by a team of researchers who wanted to study the compatibility of implementing a large-scale knowledge-sharing system in a company (Jones, Cline, & Ryan 2006). The analysis of these questions was based on an existing set of coding decision rules (Glaser, Zamanou, & Hacker, 1987). Coding was simply aligned to each of the three cultural dimensions. Statements pertaining to a dimension were coded with 1 showing positive valence, -1 showing negative valence, and 0 being neutral. The mean score for each dimension was converted to a percentage compatibility to provide context for the score. A lower percentage would indicate less compatibility than a higher percentage. Furthermore, the measure of agreement was used to determine group consensus of each dimensional score. The dimensional scores and measure of agreement provide useful indicators to determine if the cultures studied are compatible with the concept of hybrid workspaces.

Assumptions and Limitations

The research did not investigate the technological feasibility of implementation or the cost savings that can be achieved by the implementation of hybrid workspaces. This research should be associated with administrative organizations throughout the Air Force, but it is not well suited to workplace functions that require members to be physically present, such as facility repairs or aircraft maintenance. The research did not consider operations and maintenance savings or discuss how to design these spaces, but the literature suggests a savings can be achieved.

This research represents a first iteration of a hybrid workspace compatibility scoring model. The model is expected to be refined and further developed in follow-on research. It was also assumed that five out of the eight cultural dimensions identified in the research do not apply to hybrid workspace research; related assumptions are discussed in Chapter II. Results that indicate compatibility do not indicate compatibility for all Air Force units, but rather should act as a framework for understanding critical considerations for a change toward hybrid workspaces. The results are intended to show the cultural compatibility of the P&I and Finance directorates at the AFCEC. The results are intended to be notional and are intended to provide scores that show how the two organizations compare to an organization that is fully compatible with hybrid workspaces. It is unknown what thresholds actually represent a definitive answer to the question of compatibility.

Significance of Study

Successful implementation of similar efforts to use hybrid workspaces usually results in a 30 to 40 percent reduction in space (Skyrme, 1994). This is typically accompanied by a large

reduction in operations and maintenance costs, which is usually the second highest cost for organizations behind employees (Shevory, 2011). Tertiary effects can result in reduced renovation and improvement costs that occur as a result of mission changes. This research attempts to develop a framework for leadership to understand whether their organization's culture is compatible with hybrid workspaces and potentially highlight certain cultural dimensions that leaders can reform to ensure implementation of hybrid workspaces is successful.

Organization/Purpose of Remaining Chapters

Chapter II will begin by examining the history behind traditional workspaces, investigate the current concepts that define hybrid workspaces, investigate the Air Force's previous research on workplace efficiency, and highlight why traditional workspaces are inefficient. The chapter then outlines potential successes and failures in organizational change to formulate a method to measure the compatibility of an organization with hybrid workspaces. Chapter III will detail the model and methodology used to measure an organization's cultural compatibility with hybrid workspaces. After this, Chapter IV will present and discuss the results gathered from two Air Force organizations. Finally, Chapter V will present conclusions regarding the compatibility of these two organizations with hybrid workspaces.

II. Hybrid Workspaces

Traditional workspaces for administrative functions are based on ownership. Position and rank determine the workspace without regard to the type of tasks individuals accomplish. While the complete concept of hybrid workspaces has been around since 2005, the components of these workspaces have been investigated since the early 1970s. This chapter investigates the history of workspaces to explain why today's environments are structured in their present form. The concept of hybrid workspaces is then defined in detail, and the benefits to an organization that successfully implements it are explained. Additionally, the chapter investigates how the Air Force's current methodology of shrinking traditional spaces is not efficient in terms of space utilization efficiency and collaboration; it also redefines what it means to utilize space efficiently. Examples of success and failures are then investigated to determine potential impacts to compatibility. Finally, this chapter concludes by discussing a method to determine if hybrid workspaces present an opportunity to fundamentally change how the Air Force works to achieve the desired benefits of efficient space utilization and collaboration.

The History of Traditional Workspaces

Traditional office spaces typically include an assigned location of work. Position and rank determine where individuals work in an organization. Traditional office spaces developed in the early 1900s when real-time communication was limited to physical face-to-face interaction. Communication has subsequently evolved over the past century with the invention of telephones, email, instant messaging, video conferencing, etc. However, these technologies were simply added to the existing workplace structure to improve the speed at which existing

processes were accomplished. Until mobile devices became widely adopted, there was little change in the workplace setup. Maximizing mobile devices creates flexibility that was not possible a decade ago.

Traditional workspaces were organized around Alfred Sloan's division of management, dividing organizations into pyramidal structures that were easy to scale and best for control and planning in the middle 1900s (Hammer & Champy, 1988). Because of the limited communication tools in this era, supervisors were expected to be able to see their employees to ensure proper behavior and completion of tasks (Taylor & Spicer, 2007; Jacques, 1996; Markus, 1993; Thompson, 1967). In response, architects were hired to design office spaces with the goal to meet this objective (Henley, 1977). These workspaces gave the capability for managers to exert control over their employees to ensure workers were present and assumed to be working.

As early as the 1980s, private sector organizations began to evolve from task-based work to process-based work. Hammer and Champy (1988) argue that these processes focus on generating an output that is of value to the customer. This increasingly requires employees across departments to communicate and transfer information efficiently. Effective communication requires a flexible workplace to allow employees to determine the best tools to accomplish activities in each process (Hammer & Champy, 1988). However, the modern office has failed to adapt to these changes and it still a reflection of the early layouts that undermine creativity and a shared sense of purpose (Sprekelmeyer, 2005). In other words, today's architectural principles are outdated. Outram (2013), a former architect, recently said that architects do not listen to people and do not ask people if they feel uncomfortable, cold, or scared. Form should follow function and not the other way around. Current buildings are too permanent and little time is spent understanding the feelings of its occupants (Outram, 2013). As

a result, these spaces represent a controlled space which limits movement and social interaction (Halford, 2004). This is not obvious to most individuals because these traditional workspaces are all around them; employees and management alike are so accustomed to the status quo, that it is hard to see new efficient ways to organize work environments. Assigned spaces with physical barriers made sense in the mid 1950s when privacy and accountability were bound by limitations in communications technology. However, privacy and accountability are no longer required to exist in the same physical space and can now become independent, existing anywhere and everywhere.

Taylor and Spicer (2007) argue there are three forms to organizational space: distance, power, and experience. When space is considered as a form of distance, spaces are organized around resource nodes with the goal to minimize the distance to these nodes for the best workspace layout. The "power" form focuses on how to organize spaces to enable surveillance and control of employees. Influences of the first two forms are obvious in the traditional workspaces. However, it is tough to see the third "experience" form in traditional organizational spaces as it explores how members encounter or interact with the workplace. Experience shows little concern for the former two forms and seeks to understand the decorations of a space and the meaning of walls. Aspects of "experience" are often difficult to quantify, but when spaces are developed out of this form, radically different spaces emerge. Hybrid workspaces focus on this "experience" to facilitate new improved working environments.

What are Hybrid Workspaces?

Teleworking, hot desking, homeworking, and alternative working are methods to allow workers increased flexibility in their current environment. However, most of the literature does

not consider mobility in their research and does not look at the fact that people may utilize multiple physical spaces to conduct work (Hislop & Axtell 2007). This is an important difference to consider when discussing flexibility in the work environment. Early research in alternative working focused on a single method of working and how that compared to the traditional model of the workspace. Early research preserved the same perspective as traditional work in that they assume people need to work from only one location. However, today's jobs are multidimensional, and in reality, individuals choose alternative work, like telework, informally or on a flexible basis (Kunkle, 2000).

Hislop and Axtell (2007) discovered that multiple studies compared the performances of teleworkers to those who work in a traditional office environment and compared job satisfaction of those who work in an open hot desking environment to those in a traditional office environment. These studies failed to account for workplaces that are located anywhere and everywhere. To quantify this lack of attention to mobility in recent studies, researchers conducted a meta-analysis that studied different papers on telework and concluded only 3 out of 20 studies used empirical material on mobile telework (Hislop & Axtell, 2007). These comparisons fail to capture the effect of the spatial mobility in removing physical constraints of fixed locations of work and how this flexibility may benefit individuals when deciding how to work (Hislop & Axtell, 2007). "Work is what you do, not where you do it," President Obama said when discussing the need for flexible workplaces at the March 2012 address at the White House Forum on Workplace Flexibility (Seidel & Ye, 2012). There is productivity value in allowing people to work anywhere. A 16-year study by Idea Champions discovered that only 3 percent of individuals came up with their best ideas at work (Evans, 2013). The other 97 percent said their ideas come in the shower, on vacation, or doing nothing (Evans, 2013).

Giving employees the option to choose where to work can certainly be beneficial to them, but it is important to not forget about the organization. If everyone in an organization worked remotely, interpersonal interactions would be lost. The more individuals work outside the organization, the higher the likelihood of diminished productivity (Chudoba, Wynn, & Watson-Manheim, 2005). There is an obvious balance that should be struck between remote and internal work. An alternative to telework is to create a work environment that facilitates members' varying work styles. Today, workers can accomplish tasks from multiple locations. Figure 1 illustrates how technology, via a virtual workplace, can combine different physical spaces to allow teams to choose the best environment in which to accomplish work. To ensure efforts are synchronized, members of an organization share a common virtual workspace where information is stored in a virtual location. This allows individuals the flexibility to use physical spaces to enhance their work since data and information are no longer tied to a specific location or device.
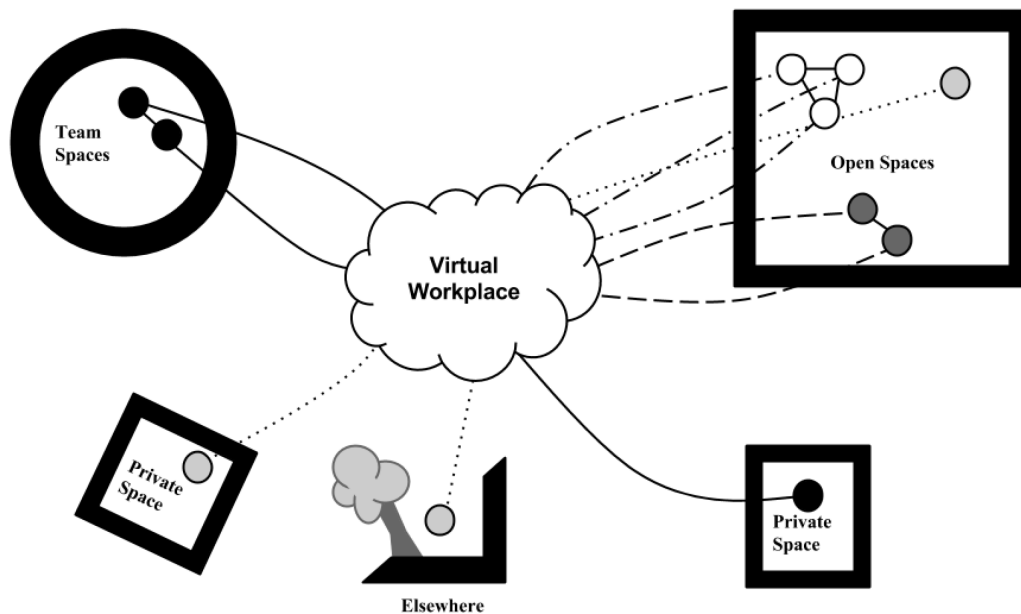
Figure 1. Hybrid Workspaces Representation

When workers are employed to work in multiple environments, these individuals may, depending on the task, conduct these tasks virtually or in close proximity; this workplace environment is referred to as hybrid workspaces by Halford (2005). While this type of space is referred to in different terms by other researchers, such as flexible workspaces or mobile telework, the term hybrid workspace offers an effective term to associate with this idea. Hybrid workspaces are not about relocating individuals to a new space, removing an individual's requirement for the space, or forcing a new work style; the spaces are a cross between new and old workplace ideas. The spaces allow employees to work in the organizational space or an optimal location of their choosing. Halford (2005) notes that when individuals have the power to choose, 56 percent of them increased the amount of time they spent working from outside the office. Individuals were able to identify which tasks were suitable for telework and which ones were suited for the workplace. Halford's (2005) research was restricted to studying the effects of workers having the flexibility to determine daily whether they can work from home or in the office. The advent of high-powered mobile devices and information technologies allow a virtual workspace to follow the worker anywhere, creating possibilities for hybrid workspaces to expand beyond work and home spaces. This possibility is viewed similarly by more than half of 675 CIOs and IT managers in that they report increased employee productivity and satisfaction (IBM Center for Applied Insights, 2012).

Current research does not apply a formal definition to the concept of hybrid workspaces. In fact, only a small amount of academic research actually exists outside the static paradigms of telework and hot desking. The modern example of hybrid workspaces can be seen in the research published by Steelcase, which began as a furniture company in 1912 and now specializes in designing for social, economic, and environmental sustainability. The company's

research is focused on creating workspaces that are ideally suited for the worker using a user-centric focus to determine how to make distance between workers disappear ("Amplify your innovation," 2013). Through research, Steelcase is discovering that there is a new way to look at how work is accomplished. Today's working environment is highly dynamic and unpredictable, so having the right workspace and tools is more valuable than having an assigned desk and organizations may enhance their effectiveness by exploiting workplace flexibility (Becker, 2002; Keane, 2012). Worker choice plays an important role in allowing this dynamic environment to be successful as the best place of work changes throughout the day depending on many factors, such as the position of the sun, number of people in one area, auditory volume, proximity near collaborators, or even the temperature of the room.

This idea of choice contrasts with the traditional workspace ideology wherein the physical workplace is where work is accomplished. To create a work environment that embodies choice, physical workspaces should be viewed as a tool to accomplish work, but not the only tool (Becker & Fewox, 2012). Physical spaces need to be organized and defined by activity and collaboration requirement. Steelcase recently discovered there are two types of workers in a survey of 30,000 participants; 54 percent are individual workers and 46 percent are collaborators. However, both types of workers require time for collaborative tasks, 20 percent and 61 percent, respectively ("Trends 360," 2013). This highlights the need to ensure spaces are available for workers to accomplish the tasks in an environment that supports collaboration. If members perceive more personal control over their physical work environment, there is a significant positive influence on job satisfaction and group cohesiveness, which may lead to increased group performance (Lee & Brand, 2005; Beal, Cohen, Burke, & McLendon, 2003).

When employee choice is considered, the perspective of the workplace changes. However, giving an employee complete freedom may not create the desired result either. Yahoo's recent change in telework policy helps highlight this conflict between too much choice and organizational goals. In February of 2013, Yahoo's new CEO, Marissa Mayer, banned telework. She acknowledged "people are more productive when they're alone. However, people are "more collaborative and innovative when they are together" (Tkaczyk, 2013). Yahoo's culture became one based on isolation because of telework and Mayer's goal was to bring people together to promote collaboration.

Yahoo's struggles highlight the need to balance employee choice and organizational goals. Mayer, before becoming Yahoo's CEO in 2012, was an executive at Google, which is well known for balancing employee choice and organizational goals. It is consistently the number one desirable place to work and manages to lead the way in technological progress. These two components when balanced properly provide a framework to define *hybrid workspaces*. These workspaces allow for employees to choose multiple physical spaces as a tool to accomplish activities that align with organizational goals. As such, the concept of hybrid workspaces is ultimately a philosophy and there is no rigid template for organizations to follow when developing these spaces; they each should be unique since no two organizations are the same.

The Air Force's History of Space Use Improvement

To become more efficient, the U.S. government passed laws in 1991 for the public sector that restricted space utilization to 152 square feet a person. However, the laws were changed again in 2001 to be based on program need and best value rather than square footage mandates (Sindelar, 2006). While the latter law suggests more flexibility for organizations to decide how

to operate, the Air Force still maintains space standards and defines space based on grade and position (United States Air Force, 2012). By April 2013, the Office of Management and Budget created a policy that prevents any government agency from increasing its footprint, which is evidence that current standards are not effective in meeting government targets.

Starting in 2006, the Air Force made an effort to meet U.S. government space reduction targets by creating its own effort to reduce space by 20% by 2020 (20/20). However, the effort typically only considers redesigning facilities based on pre-existing space standards and the demolition of old facilities. The population of the Air Force has decreased since the 1990s, yet still struggles to decrease space use. Figure 2 illustrates that as of 2012, progress was limited and the inventory was only reduced by 0.5 percent (McElhannon, 2013). Official numbers from the Air Force Civil Engineer Center (AFCEC) indicate a starting 20/20 inventory of 501 million square feet (MSF) in 2006. This quantity was revised the following year down to 465 MSF. From 2007 to 2012 that figure increased to 498, at one point peaking at 502 MSF in 2011. Current measures to reduce square footage involve removing unused or underutilized space such as extra conference rooms, larger offices, and lounge areas to comply with current standards set out in Air Force Manual 32-1084, but in no way does it fundamentally address current workplace behavior to create an innovative shift in current space use standards. Hybrid workspaces offer an avenue for the Air Force to accomplish the goal of meeting the 20/20 mandate.

Previous research in space utilization efficiencies focuses on taking the traditional workspace model and finding ways to reduce underutilized space. Complying with existing criteria can account for a 28 percent reduction to meet current space utilization standards set by the Air Force (Maline, 2012). However, this reduction neglects to consider the needs of the worker in those spaces. The current focus examines the efficiency of the building as a solution

and not the efficiency of personnel working in the building. Through this focus, the end-result

determines how to maximize efficiencies by using open floor plans and cubicles based on

existing standards developed by the Air Force (Maline, 2012).
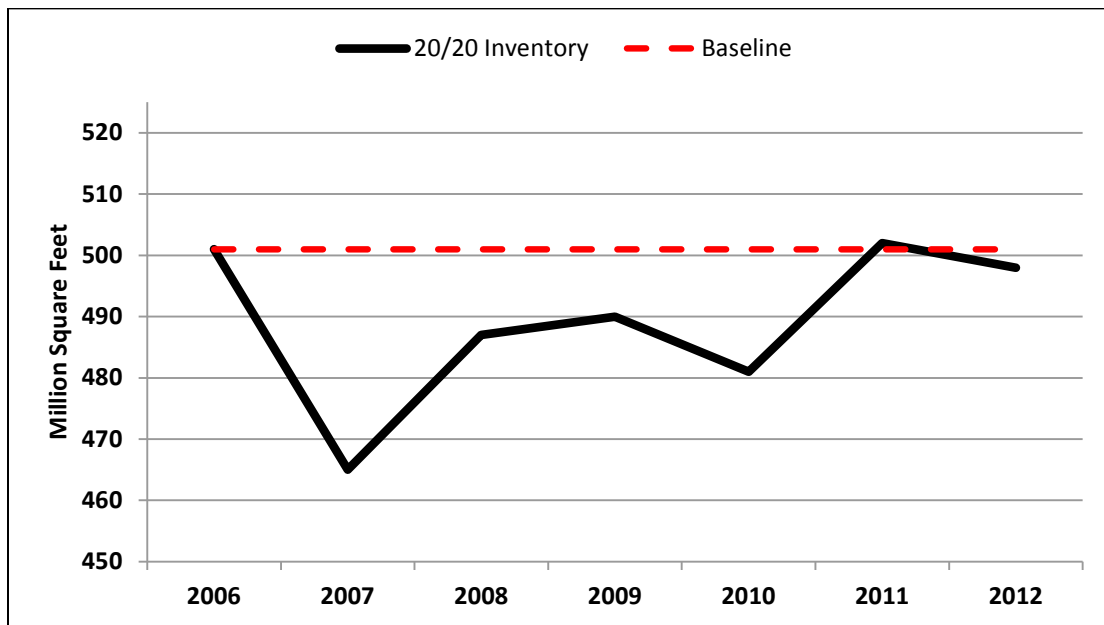
Figure 2. 20/20 Progress from 2006 to 2012 (Based on McElhannon, 2013)

Significant reductions can occur if the Air Force were to adopt hybrid workspaces. Byers

(2010), former Civil Engineer of the Air Force, noted that the current Air Force standard is 200

square feet per person. Prior to reorganizing, a finance division within Steelcase used 191 square

feet per person. After it adopted hybrid workspaces, space use reduced to 154 square foot a

person (Keane, 2012). The opportunities to improve space use efficiency are large. If an Air

Force organization conservatively reduced its requirement to 175 square feet person through the

use of hybrid workspaces, the total space savings would be greater than 30 percent; 40 percent if

the organization matched Steelcase's efforts.

The Inefficiency of the Traditional Workplace

Traditional workspaces are regimented and strictly defined by position and rank. Although members have their own office or space, they are in that space only a fraction of the time. This fraction of space utilization could be significant. Evidence of the significance can be seen from a study in which the General Services Administration (GSA) studied its space use habits from February to May of 2011 and found that employee spaces were used on average only 45 percent of the time and never exceeded 56 percent (Seidel & Ye, 2012). An even broader study that looked at private sector organizations utilizing traditional offices revealed that of 18 organizations and 7,312 knowledge workers, people were at their desk only 35 percent of the time (Laing, Craig, & White, 2011). Even with a conservative estimate of 60 percent, the underutilization of space is grossly inefficient. No organization would knowingly tolerate this inefficiency, and this does not even consider communication inefficiencies. To compound this space use inefficiency, workplace layout and organizational structure also serve to restrict collaboration.

Even when workers operate in their assigned spaces, the traditional work environment makes it difficult to collaborate with team members, easily share information, and ensure continuity because of hindrance stressors such as walls, partitions, doors, cubicles, lack of team spaces, and over-reliance on email as the medium of communication. Hindrance stressors are obstacles in the workplace that prevent individuals from accomplishing their tasks. Therefore, it is logical to assume that these should be minimized when designing an organization's environment. To avoid these stressors, employees choose the easiest method to communicate (Gerstenberger & Allen, 1968). If the door to an office is closed, email is used; if someone is in the same physical space, verbal communication is used. If email is the preferred communication

in an organization, it is because the layout does not accommodate easy communication. While email can be useful to transfer information, it is inefficient as a preferred communication method because it represents communication without face-to-face interaction, which reduces the amount of information exchanged between employees. When used extensively for communication, email represents yet another barrier to communication in an organization.

Formalized telework programs may also create communication barriers in organizations. When members are restricted to a set, predefined schedule for which they are able to telework, the organization suffers. As an example, the members are not expected to be in the workplace on their telework days. This alone would pose no conflict; however, what if a task emerges that requires the member's physical presence where video conferencing would not provide the optimal level of engagement? Conflict arises in that supervisors now need to consider if they should disrupt the member's telework day or push off the task until a future convenient date. This conflict is exacerbated because of the scarcity of telework days per week and the fact that members are required to shift activities around to ensure proper utilization of those days.

A siloed work environment, or a work environment where communication flows up and down but not laterally across different departments, results not only from the space layout but also from organizational culture. When workers are separated by departmental membership into separate sections, this silo effect is enhanced when the physical barriers reinforce organizational barriers. Former IBM CEO Gerstner (2002) noted the effects of these barriers in his early days after joining the IBM corporation, "Early on I discovered, to my dismay, that the open exchange of ideas…the free-for-all of problem solving in the absence of hierarchy…doesn't work so easily in a large, hierarchical-based organization."

Occupancy rate, physical barriers, and organizational separations combine to create inefficiencies in the traditional work environment. As a result, if team members physically work more than 30 meters away, those individuals might as well be several miles apart (Allen, 1977). Workers lose 66 minutes a day in these work environments because of inefficiencies, hassles, and distractions (Laing, Craig, & White, 2011). Distance from other team members has a detrimental effect and is negatively correlated with productivity, job satisfaction, and organizational commitment (Wolfeld, 2010). These phenomena are further reinforced by a study that analyzed the proximity of collaborators working on a publication and the correlation of proximity to the impact of the work. The observations showed a strong relationship with smaller distances correlating with higher impacts (Lee, Brownstein, Mills, & Kohane, 2010).

On the surface, it would seem that organizing a workspace around an open concept layout would remove these communication barriers, but there are other barriers that emerge as a result of members not having the opportunity to change their environment or move to a new location that is more compatible with a specific task. When members are forced to work in an open bay, it may be ideal for a percentage of time; however, if the environment is not compatible with the task, employees will figure out better ways to perform the task, even if it requires more time to discover the location. Research confirms that problems such as noise, lack of privacy, and other distractions exist in open environments (Evans & Johnson, 2000; Sundstrom, Bell, Busby, & Asmus, 1996). While there is no proven correlation with the relation between distraction level and perceived performance, there is evidence to support a negative relationship with workplace satisfaction (Lee & Brand, 2005). When this dissatisfaction is combined with the assumption that placing dedicated workers into smaller spaces serves only to decrease satisfaction in the workplace, noise and limited space emerge to contribute to further decreased job satisfaction.

Decreased job satisfaction is shown to negatively impact job performance and organizational commitment (Colquitt, LePine & Wesson, 2011). Conversely, Teresa Amabile, a business administration professor at Harvard, says that there is evidence to suggest that great physical spaces enhance creativity because fun open spaces are where people want to facilitate idea exchange (Stewart, 2013).

If communication barriers in the work environment are removed, the members of an organization are more likely to engage in face-to-face interactions either physically or virtually. Face-to-face interactions are important, based on social presence theory, in that they help strengthen social network connections (Short, Williams & Christie, 1976). Tearing down these communication barriers creates a dynamic work environment and increases the likelihood of impromptu interactions because workers are more accessible and visible (Wolfeld, 2010).   These chance interactions can lead to more productive workplaces and workers with higher job satisfaction (Campbell & Campbell, 1988; Wolfeld, 2010).   On average, a 20 percent cost reduction and increased productivity can be expected when organizations remove these barriers (IBM Center for Applied Insights, 2012).

Potential Successes and Failures

There is currently limited research available to examine the success and failure of hybrid workspaces. Research into the failures of telework, hot desking, and other non-traditional workspaces can provide insight into potential issues that organizations face when redesigning employee workspaces. This change is difficult as an individual's internal reaction is to resist the change (Becker & Fewox, 2012). Reorganizing the workplace causes a difficult shift in fundamental habits, not necessarily because individual work habits need to change but because

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the atmosphere and freedom of hybrid workspaces may be similar to the feeling of standing on the edge of a cliff without a railing, when previously there was a railing. There is more freedom, but sometimes this freedom may lead to failure.

One of the oldest examples of a workplace centered around hybrid workspace concepts, constructed in the 1940s, is building 20 at the Massachusetts Institute of Technology (Lehrer, 2012). Building 20 was known as a legend of innovation and regarded as one of the most creative spaces in the world in its era. Because of the building's temporary status and cheap nature of construction as a Radiation Laboratory for the Allied War Effort, the scientists who resided in the building utilized this building as they wanted. They tore down walls and created spaces to match the needs of their teams. What this space essentially did was make typical solitary scientists mix and mingle because the layout accommodated various types of chance face-to-face interactions. The results speak for themselves; Building 20 became the center for groundbreaking research on military radar and advanced the field by at least 25 peacetime years in the matter of just a few years. In subsequent years, advances in high-speed photography, the physics behind microwaves, and even the start for the Bose corporation originated out of Building 20 (Lehrer, 2012).

Building 20 was an example of a low road building. As described by Brand (1995), low road buildings facilitate creativity because they are under-designed and unwanted. These characteristics gave the scientists flexibility to organize the workplace to facilitate their work. Buildings should not dictate how work is conducted, but rather humans should be able to tell the building how they need to work. Organizations and missions change, but traditional spaces are created to be permanent and require additional costs to renovate when missions change. Building 20 demonstrates why giving people the flexibility to choose their space may boost

productivity. Understandably, this example describes how an organization centered on innovation can be affected, but recent examples show how traditional organizations may also benefit from hybrid workspaces.

A recent example of organizations changing how they operate involves two public sector agencies: one where telework was successfully implemented and the other where telework was not successfully implemented (Taskin & Edwards, 2007). Change into a telework system failed in one agency because the Human Relations department director saw telework as a method to motivate his employees by offering it only to outstanding employees. Management was not transparent about the project to implement telework and, as the result of poor communication, implementation was based on rumor rather than information presented by leadership. Taskin and Edwards (2007) noted that because the director belonged to an older generation, he was opposed to the idea of telework because of the loss of control and there was a conflict because the rules in telework inherently conflicted with the convention that was currently in place.

Successful implementation of telework in the second organization was the result of clear communication and the desire to implement the change (Taskin & Edwards, 2007). The organization ensured that employees were accessible to all other employees in the organization during set predetermined times and they had to be available to be contacted. Interestingly, they removed the time clock machine and it seemed to put more social control on the workplace and no longer was a presence in the workplace considered important. There were some issues noted such as the ability for a manager to talk to his team at any time (Taskin & Edwards, 2007).

As demonstrated by the two agencies, hybrid workspaces can be a detriment to certain management styles. Illegems, Verbeke and S'Jegers (2001) suggest that the workplace cannot be supported by traditional management styles, such as management by walking around, because

employees are not in the workplace or never in a set location. Even today, it is still common that managers judge performance by the amount of time one spends at work (Taylor & Spicer, 2007; Collinson & Collinson, 1997; Ezzamel et al., 2001; Perin, 1991). If management intends to use management by walking around, then perhaps it is better off adapting management by working alongside people. Management should emerge to a trust-based system where there is a high level of trust and assume that their employees are trustworthy until trust is violated (Illegems et al., 2001). Wang (2009) found that to manage folks in remote settings, deadlines and goals allowed individuals to choose when and how to accomplish their tasks. If managers focus on their employee deliverables and measure the quality through metrics, they can effectively eliminate monitoring employee's behaviors on a day-to-day basis (Kurland and Cooper, 2001).

Additionally, there are concerns from individuals who are not in the workplace most of the time that their performance is not linked to measurable outputs but by only looking at their time in the chair (Kurland and Cooper, 2001). By removing assigned spaces, that cultural expectation is eliminated as individuals no longer have "their chair." Managers should be easily available to their members and set up specific rules and protocols about availability and accessibility (Wang, 2009). By setting a period of time that all employees will be accessible by phone or instant messenger, managers can create an extension of the workplace outside the physical space. Schedule sharing, presence awareness, and instant communication play an important part in keeping people available in the workplace. Another component is to ensure employees work in the physical space as well and not rely strictly on telework. This ensures new employees process through value internalization and ensures employees and managers alike draw some boundaries between work and personal life (Wang, 2009).

Outside of the managerial incompatibilities, there are some positive side effects of hybrid workspaces; they manage to accomplish both reduction in space utilization and meet the needs of the workers. A study in the United States and Europe showed that 86 percent of companies are implementing alternative work strategies to reduce real estate costs ("Culture Code," 2012). Steelcase also proved in its own finance division that organizations can reduce floor space from 191 to 154 square feet per employee (Keane, 2012). This demonstration within their finance division shows that even the most unlikely of candidates, a finance office, can benefit from a flexible working environment where workers have the power to choose.

Social responsibility is another positive side effect of hybrid workspaces that can assist management. Without traditional workplace controls in place, a new type of order is established between peers. Effects on social comparison can have a positive or negative impact on organizational performance (Bandura & Jourden, 1991). It is important to note that rules and protocols be set at the team level and not by the organization (Wang, 2009). If an organization's culture is too centralized, it may indicate an incompatibility with hybrid workspaces.

Another aspect that should be considered is the cultural expectations. As discussed earlier, today's workspaces are defined by rank and position. This example can be seen in a recent move by a federal law office to a new space to improve space efficiency (Dalton, 2011). The new office space was organized in the traditional sense; however, when one attorney wanted to sit at an open modern cubicle with low walls because it had a view of the skyline, it caused an uproar in the office. The expectations for that organization were that lawyers should work in closed offices and secretaries work out in the open. Never mind that the individual in question did not have a secretary or that secretaries as a profession is fading in importance, the suggestion to put a secretary in the office did not go over well because other secretaries were envious that

one secretary got an office. To maintain peace between the other secretaries, the organization needed to make the secretary's office undesirable (Dalton, 2011). This culture clash reinforces that even though an idea may make sense, an understanding of the culture is required to avoid unintended consequences.

Interestingly, there may be new examples of how hybrid workspaces may help companies evolve into something new and unexpected. Zappos, a successful online retailer, offers some insight into these possibilities of how hybrid workspaces may help an organization evolve when it embraces these spaces (Nasser, 2012). Zappos fully embraced hybrid workspaces after a move in 2013 and managed to reduce their space use by nearly half (Nasser, 2012). This was only the first-order effect. What followed is interesting and suggests that space itself can lead to further improvements to the organization. The company is now reorganizing its corporate structure around a *holacracy* (McGregor, 2014). A holacracy centers work around tasks and processes that need to be completed instead of around a hierarchy of positions. Instead of single teams, people are assigned to multiple circles with lead links instead of traditional managers. The vision with this structure is that it will allow for the organization to remain flexible and not become stagnant (McGregor, 2014).

Can the Air Force Utilize Hybrid Workspaces?

The previous examples demonstrate that even if change may benefit an organization, it is still limited by the desire of the organization to adopt the change. The Air Force has demonstrated the need to become more efficient in space utilization through its 20/20 program. In addition to the current fiscal limitations, there is also a desire on some level to become more efficient as an organization. The Air Force prides itself in saying "flexibility is the key to air

power." So it would seem like hybrid workspaces would match the agile goals of the force. However, the method and perspective in which the Air Force is currently looking at the problem is limiting potential gains in both space utilization and workplace efficiency. If space efficiency was the only benefit to be found from the Air Force perspective, hybrid workspaces would provide a marginal difference to the final result when compared to existing methods to increase space efficiencies. What makes hybrid workspaces appealing is that it facilitates improved space utilization efficiency while enhancing organizational efficiency.

With these two needs validated, how does one measure an organization's compatibility to a new idea? Gittleman et al. (1998) suggested, but failed to prove, that a number of factors can influence the adoption of alternative workplace practices, to include the size of the organization, unions, and the requirements for new technology. In their conclusion, they determined that more constraints need to be considered, including culture. It is important to examine the cultural characteristics of an organization to determine if it is ready to implement the change (Scott, Mannion, Davies, & Marshall, 2003). If an organization's culture does not support the fundamental aspects of hybrid workspaces, such as collaboration and empowering employees at the lowest level, the organization will find a hard time adapting to a change movement.

There are usually two orders in change. The first order tends to be incremental, while the second order challenges an organization's fundamental beliefs (Ertmer, 1999). Hybrid workspaces represent a second-order change as they require new goals, roles, and structures; they also require change to happen at all levels of an organization. If the culture does not support the change at all levels, to include leadership, implementation will probably fail. Without fully understanding the culture and management attitudes completely, these attitudes can prevent major, disruptive changes from occurring (Hammer & Champy, 1988). This agrees with the idea

that form should follow function; understanding an organization's cultural feasibility to accept change should be considered before making any determinations on the level of change an organization will address.

Cultural Feasibility

Cultural feasibility is difficult to define; however, looking at past change initiatives can provide structure to defining culture (Detert, Schroeder, & Mauriel, 2000). Since the 1980s, the corporate world has experienced multiple management fads and research has investigated various aspects of Total Quality Management, Lean, and Business Process Reengineering. These management methodologies, while focused on management philosophies, share one thing in common with hybrid workspaces in that they explored ways to change how organizations operate. Management is often blamed for past failures in initiatives, but the underlying culture that influences the management can be the true cause of the failure (McNabb & Sepic, 1995).

Culture is the values, beliefs, and underlying assumptions that either support or prevent change in behaviors (Detert et al., 2000). Pettigrew (1979) used the term organizational culture, and Hofstede, Neuijen, Ohayv, and Sanders (1990) suggested organizational culture can be explained by six different dimensions. While their results provide structure to organizational culture, they considered their sample too small to suggest a universal model. Other researchers show that the dimensions vary with no commonly agreed upon structure of culture (Detert et al., 2000). This ambiguity was cleared up when Detert et al. (2000) conducted a meta-analysis of 25 different culture studies to generate a matrix to help define key dimensions in culture. Eight different general dimensions of organizational culture were observed. The results from the qualitative meta-analysis are summarized in Table 1.

Table 1. General Dimensions of Organizational Culture (Based on Detert et al., 2000)

Dimension	Description
Basis of Truth and Rationality	Perceptions of what is real and not real and how truth is discovered.
Nature of Time and Time Horizon	How time is defined and measured.
Motivation	People's internal or external motivations.
Stability vs Change/Innovation/Personal Growth	Whether individuals are open to change or prefer to be satisfied with the status quo.
Orientation to Work/Task/Coworkers	Details people's balance between work and living life.
Isolation vs Collaboration	Ideas about working alone or collaboratively
Control, Coordination, and Responsibility	Whether people's actions in an organization are tightly or loosely controlled.
Orientation and Focus (Internal/External)	External or internal controls of an organization's environment.

For hybrid workspaces to be implemented, certain cultural dimensions should be receptive to change. Not every aspect of the culture needs to be present to implement change, as not all elements of a culture need to adapt to the same degree (Detert et al., 2000). To determine the cultural dimensions that might demonstrate compatibility with hybrid workspaces, the benefit from implementing hybrid workspaces should be determined first. The literature shows that hybrid workspaces facilitate the flow of information and ideas; essentially, they enhance communication. Therefore, each dimension used to demonstrate compatibility should describe how an organization handles the flow of information. For example, if the "Isolation vs Collaboration" dimension is heavily skewed toward isolation, the dimensional tendency

demonstrates an incompatibility with hybrid workspaces. Organizations that are extremely

siloed may fail to see any benefit in implementing hybrid workspaces because there is limited

interaction by design. Unless leadership makes an effort to change the isolative culture in their

organization upfront, the organization will struggle with the change.

Based on this logic, the cultural dimensions affecting compatibility with hybrid

workspaces include "Stability versus Change," "Isolation versus Collaboration," and "Control,

Coordination, and Responsibility." To simplify future references, these dimensions are referred

to as Change, Collaboration, and Control, respectively. "Change" is assumed to affect

compatibility because it describes an organization's receptiveness to change the status quo if they

see the benefit of improved communication. Organizations that see things are good enough in

the presence of contrary information may find it difficult to adapt to a new workplace

atmosphere. Likewise, "Control" is assumed to be important because it describes how decisions

are made. Are they made by a few individuals in leadership or is decision-making pushed down

to the lowest level? Adopting hybrid workspaces may be difficult if communication flows up

and down and not side to side. In addition, managers who tend to manage employees by their

physical presence in the workplace, instead of task performance, may have a difficult time

adapting to the new workspace.   Finally, "Collaboration" is assumed to be important because it

is central to why an organization would want to implement hybrid workspaces in the first place.

If an organization extensively collaborates, they will see great benefits to hybrid workspaces.

However, if the members of an organization primarily work in bubbles or silos and have no

desire to improve information flow and the exchange of ideas, few may see the value in having

spaces that improve the flow of ideas.

The remaining five dimensions are assumed to be of little importance because they describe how organizations utilize the information they receive and are internally motivated but do little in the way of facilitating information transfer.   The "Basis of Truth and Rationality" dimension pertains to how organizations use information or lack of information to make decisions (Jones, Cline, & Ryan 2006). It does not address the way information flows, but rather how individuals in an organization digest information. The "Nature of Time and Time Horizon" describes how an organization plans (Jones, Cline, & Ryan 2006). "Orientation to Work" describes how employees balance their work and life. In essence, do they "work to live" or "live to work?" The "Motivation" dimension describes extrinsic or intrinsic motivations (Jones, Cline, & Ryan 2006). Arguably, some aspects of "Motivation" may influence information flow. Some individuals are motivated to communicate because they have an internal drive to be extroverted, or they have a desire to do great work that requires collaboration. Others are externally motivated by peer response or their supervisors to communicate. Regardless of the motivation type, this dimension only describes the motivation and not the abilities of the organization to communicate. Similarly, "Orientation to Focus" describes whether an organization's gaze is focused on external or internal results (Jones, Cline, & Ryan 2006). Arguably, some of the aforementioned dimensions may contribute slightly to information flow, but for the purposes of this analysis, it was assumed that the dimensions identified in Table 2 are significant in measuring compatibility with hybrid workspaces.

Table 2. Applicability of Hybrid Workspaces to Individual Cultural Dimensions

Cultural Dimension	Demonstrates Compatibility?
The basis of truth and rationality in organization	No, Pertains to how organizations use information
The nature of time and time horizon	No, Pertains to the time frame of information to consider
Motivation	No, Discusses work ethic
Stability versus change/innovation/personal growth	Yes, culture should show a willingness to change to improve information flow
Orientation to work, task, and coworkers	No, Pertains to balance of life and work
Isolation versus collaboration/cooperation	Yes, directly relates to the willingness of individuals to maximize information flow
Control, coordination, and responsibility	Yes, does information flow up and down or side to side?
Orientation and focus--internal and/or external	No, pertains how organizations perceive internal or external influence.

Measuring Culture

Since the literature suggests that culture can be measured relationally and not definitively, it is important to develop a model that can show the relationship to compatibility. Hofstede et al. (1990) suggest that differences between cultures are partly quantifiable and that a comparison can be made between cultures to identify any differences between two cultures. In the absence of cultural data that represent full compatibility with hybrid workspaces, the review of the literature has highlighted the dimensional characteristics of a fully compatible culture. It is proposed that the ideal culture, congruent with hybrid workspaces, has the following dimensions: fully collaborative, decentralized control, and receptive towards change that may benefit the

organization. It is suggested that in order to determine an organization's compatibility with these spaces, a comparison should be made between the dimensions of the measured organization to the dimensions that represent a fully compatible culture.

The art of measuring culture also requires special attention to how individual perspectives translate to the group level. Because the intent is to develop a method for assessing a group's culture by interviewing individuals, levels of analysis should be addressed. Characteristics at the individual level do not always reflect characteristics of the organization, and researchers have realized that the organizational phenomena are inherently multilevel and do not occur at a single level (Chen, 1998; Fischer, Ferreira, Assmar, Redford & Harb 2005; Kozlowski & Klein, 2000). Do individual personalities correlate to an overall group level determination of culture? Chen, Bliese, and Mathieu (2005) suggest that individual personality, while not identical to group personality, shares the same function in that the outputs of both are comparable at both the individual and group levels. In addition, collective efficacy is conceptually similar to self-efficacy when measured because of the desire to achieve a similar action (Chen et al., 2005). In terms of the three targeted cultural dimensions, if the individuals have the ability to collaborate because they desire collaboration, the culture is collaborative and not isolative. The same can be said for change. If they have a desire and ability to implement change, one should be able to assume that trait aggregates to the group level. Finally, in regards to the control dimension, if individuals feel comfortable in their ability to make decisions at their level, that shows efficacy towards decentralized decision-making because individuals desire to make those decisions.

The direct consensus model uses within-group consensus of the lower units to show how the construct is conceptualized at a higher level when the lower level is functionally similar to the construct at a higher level (Chan, 1998). Organizational culture typically rests on the direct

consensus model (Klein, Conn, Smith & Sorra, 2001). This within-group consensus supports the definition of culture in that it is a shared meaning of beliefs and actions (Glaser, Zamanou, & Hacker, 1987). If the model's results show there is no agreement among members, the unit lacks any shared norms (Kozlowski & Klein, 2000). The model uses averaged individual member's responses to operationalize group scores (Chan, 1998). This conceptual model does not investigate how management influences cultural compatibility from a top-down perspective. There is empirical evidence suggesting that higher-level variables exert social influences on individuals in an organization (Fischer, Ferreira, Assmar, Redford, & Harb 2005). Culture can even change between management levels in an organization (Detert, Schroeder, & Mauriel, 2000). This variability makes it difficult to apply a standard assessment to any large organization. Each type of organization should be examined carefully to determine whether it is ready for change. If components of the culture do not work well with hybrid workspaces, time should be spent to address that aspect of culture before the change is enacted.

Hybrid workspaces offer an opportunity to improve space utilization and organizational efficiency. Organizing the workplace around members' needs can lead to enhanced performance. History shows why the workplace is structured the way it is today. However, there is no longer a need to have the workplace structured in this manner because it leads to communication barriers that impact collaboration. However, second-order change is not easy for large organizations; therefore, careful planning should be conducted when considering change. To understand if an organization is ready for change, the culture should be analyzed. By comparing certain cultural dimensions applicable to hybrid workspaces, a measurement of compatibility can be assessed. The next chapter will outline a methodology derived from the literature to develop a working method to determine an organization's cultural compatibility with hybrid workspaces.

III. Methodology

This chapter outlines the methodology used to assess the compatibility of the Air Force culture with the implementation of hybrid workspaces. The research questions were answered by utilizing a non-experimental, qualitative method. Grounded theory was originally considered to develop a framework to assess the cultural readiness to implement hybrid workspaces. Grounded theory is a systematic approach used in social sciences to help generate theory by coding data and grouping it into categories using a three-stage coding process (Glaser & Strauss, 1967; Corbin & Strauss, 2007). However, the literature suggests an existing framework: the concepts and methodologies in the literature can be used to generate a coding schema that can help compare the three cultural dimensions identified in Chapter II. The chapter then discusses the constructed interview, coding method, and validation. The chapter concludes by describing how the codes were scored to generate a score that represents the compatibility of the measured organization and outlines a method to provide context to the results as an indicator of reliability.

Proposed Method of Measuring Compatibility

Due to the sample size required to capture the Air Force's culture, a small sample was used to act as a pilot investigation to develop a method of measuring compatibility. The overall question proposed was, "How does the Air Force culture demonstrate it is feasible to use hybrid workspaces to improve space utilization efficiency and organizational efficiency?" Hofstede et al. (1990) suggest that a cultural comparison can be made to show how close or how far apart two cultures may be. Investigative questions A, B, and C were answered by measuring each of the cultural dimensions applicable to these factors: Collaboration, Control, and Change.

The three controlling cultural dimensions in this analysis describe a culture that demonstrates full compatibility with hybrid workspaces. Chapter II revealed that a fully compatible culture is one that is collaborative, maintains decentralized control, and is fully willing to change if it provides a benefit to the organization. These three cultural dimensions represent the ideal culture to act as the baseline reference to determine organizational compatibility with hybrid workspaces. The results show how similar or different each of the three dimensions are from the baseline culture and are intended to show a general measure of compatibility to give organizational leaders an idea on whether the change towards hybrid workspaces may positively or negatively impact their organization. If the results show an organization is not compatible with hybrid workspaces, there are underlying issues that should be addressed before implementing the change; however, this does not mean that integration of hybrid workspaces is impossible. The measurement system is represented on a spectrum from 0% to 100% and indicates whether there is within group agreement. The system can act as a guide for leadership to facilitate implementation of hybrid workspaces.

The Interviews

To demonstrate this methodology, two staff organizations were interviewed: the Air Force Civil Engineer Center's (AFCEC) Program and Integration (P&I) Directorate and Finance Directorate. These organizations were chosen because they both operate out of different workplace layouts and have a different mission focus. The P&I directorate was created in October of 2012, while the Finance directorate has been around for years. Therefore, the results were expected to show a difference between the two organizations and provide context to the compatibility scores and perhaps a measure of validity.

Originally, 10 members each from P&I and Finance were to be interviewed, but due to time and availability of the participants, only 9 and 8 members from each respective organization were interviewed. The pool of participants represent around 10 percent of the total population of each organization with membership at 86 and 75 individuals, respectively. The participants were selected by each organization's leadership, so it is difficult to determine if there was a representative sample.

The interview questions, open-ended to facilitate candid responses, were based on a study that characterized the culture of multiple organizations to determine the potential impact of implementing new knowledge sharing systems. These researchers noted that these new knowledge sharing systems required fundamental changes for organizations (Jones, Cline, & Ryan 2006). Jones et al. (2006) used the eight dimensions derived from Detert et al. (2000) to develop the questions. Given the research's similarities to hybrid workspaces, on the scale of organizational change, this presented a starting point to develop the interview questions. The questions in Appendix A were specifically worded to focus on the cultural dimensions identified as important to hybrid workspaces without directly asking about specific hybrid workspace setups. This design may reduce the introduction of bias from the participant's perspective because they were worded to address issues of Collaboration, Control, and Change. Jones et al.'s (2006) questions were used as a guide to ensure questions were appropriately constructed.

The interviews were conducted by telephone. Due to the limited access to the members and remote distance from the Air Force Civil Engineer Center, convenience sampling was used and based on the discretion of the P&I and Finance Directorates' leadership. A time was scheduled with each interviewee to ensure they had enough time to participate in the interview without time pressures. The interviews were digitally recorded with the participants' consent.

Interview Analysis

The participants' interview responses were coded using the method of Glaser, Zamanou, and Hacker (1987) to analyze a government organization's culture. Their research created a framework to study organizational culture by using reliably coded interviews to provide context for standardized questionnaires. The coding decision rules were modified to align with the eight dimensions of culture to generate results and provide answers to the investigative questions. While Glaser et al.'s (1987) research created questionnaires based on the triangulation of quantitative and qualitative analyses, they suggest that the qualitative coding portion of their research can be used as a replicable effort to assess organizational culture. Glaser et al.'s (1987) qualitative analysis used different cultural categories as the basis for their coding. The coding decision rules from their study were utilized in this research as a baseline to develop coding rules that were applicable to measure compatibility of the three cultural dimensions. Summaries of operational definitions from Jones et al. (2006), based on the definitions of the eight dimensions of culture from Detert et al. (2000), are used to organize the coding schema as shown in Table 3.

Table 3. Definitions of Cultural Dimensions (Based on Jones et al., 2006)

Dimension	Definition
Orientation to Change	Extent to which organizations have a propensity to maintain a stable level of performance that is 'good enough' or a propensity to seek to always do better through innovation and change.
Orientation to Collaboration	Extent to which organizations encourage collaboration among individuals and across tasks or encourage individual efforts over team-based efforts.
Control, Coordination, and Responsibility	Extent to which organizations have decision making structures centered around a few vs. structures centered around dissemination of decision making responsibilities throughout the organization.

Due to the simple nature of the coding scheme, interviews were coded directly from the audio recordings, instead of transcripts, based on the coding rules shown in Appendix B. Each interviewee response was judged in relationship to the relevant cultural dimension. For example, if a participant discussed negative valence towards a change in the workplace that enhanced face-to-face interaction, the response was coded as a negative in the change dimension. Valence towards change was coded in context based on the difference from a fully compatible culture. Therefore, responses may not always maintain a positive relationship. For example, if a participant articulated his/her dislike for a change in the workspace that impacted the ability to collaborate, the response was coded positively. Even if the participant showed dislike for change, the reason for their dislike demonstrates compatibility with hybrid workspaces. In general, participants who expressed positive valence toward changes that impact collaboration are demonstrating an incompatibility with collaborative environments, while those who disliked the change demonstrate their desire for these environments.

The change dimension is not to be confused with the collaboration dimension as collaboration focuses on the actual behaviors to either collaborate or work in isolation. When responses were coded, if a participant discussed how their job requires interaction with individuals the majority of the time, it was coded as a positive statement in the collaboration dimension. Finally, the context in which the control dimension was coded related to the perception of management behaviors that the participant articulated. If the participant articulated a management style that controlled most decision-making and strictly set procedures, it demonstrated an organization with a negative valence towards decentralized control.

The goal of the coding was to compare to cultural dimensions observed to the dimensions that describe a fully compatible culture. Each time an applicable response was made in the audio

recording, a response ID number was created based on the question's category, question number, and response number. The response ID was recorded with a timestamp, category, score, and notes in the coding log. Notes were used to record decisions for responses that were complicated. Table 4 depicts an example of this coding log. To maintain consistency between questions, each question was coded across participants before moving on to the next question. The mean of the participants' coded results represents compatibility of culture on a continuous scale from negative one (highly incompatible) to positive one (highly compatible); zero indicates neutral compatibility. In general, the more positive a participant's score, the more compatible they are with hybrid workspaces.

Table 4. Example Coding Log

Response ID	Timestamp	Category	Score	Notes
A2-1	2:12	Control	-1	
A2-2	4:15	Collaboration	0	

Coding Validation

The coding of the interviews was conducted by the researcher. To demonstrate a degree of reliability and highlight potential bias during the coding, a random selection of 45 participant responses, representing 10% of the total from the interviews, were reviewed by a peer to act as a validation measure. The random selection was conducted in a two-stage process. First, a random number was generated that represented a participant and second random number that represented the response number for each participant. If the first stage generated a number of 4 and the second generated a number of 20, the response used was the 20th response from the 4th

participant. In the case where duplicate responses were generated, the participant's next response was used. For example, if two of the responses were from participant five's seventh response, then seven and eight were used for the validation exercise. The 45 randomly selected responses were transcribed and organized by interview question as shown in Appendix B. Responses were organized on the top level by each of the three dimensions, followed by response ID. The coding rules for each selection were printed in red above each ID group to ensure there would be no confusion when the peer evaluated each response. The peer evaluation worksheet is shown in Appendix C.

The researcher coded the responses directly from the audio recordings while the peer conducted their coding based on transcribed data. Therefore, the coding validation opens up the potential for the results to vary, not because of a difference of opinion, but because of the lack of context that the transcribed responses may provide. Therefore, any differences between the author and the peer should be reviewed to ensure the peer was coding the transcribed responses based on the same context as the audio responses.

Scoring Compatibility

To provide a compatibility indicator, the coded results were compiled to generate a percent compatibility for each dimension. Each organization received a percentage from 0 to 100 and a measure of agreement. Each cultural dimension was scored individually and the following steps are used to generate each score.

1. Each individual's responses were organized according to each cultural dimension.

2. The mean of all individual responses relating to the same dimension were computed. The result is the individual's dimension score.

3. The mean of all the individuals' scores and standard deviation were calculated for each organization by dimension.

4. The mean was converted to a percentage by multiplying the mean by 50 and adding 50: Dimension Score = $(\mu \times 50) + 50$.

The method to calculate each organization's cultural dimension score assumes individual efficacy levels are generalizable to the group. This research aggregated individual perceptions to represent at the group. To do this with some validity, the structure of the trait should be analyzed to see if it resembles the higher level, but it need not be completely identical (Chen, Bliese, & Maithieu, 2005). In terms of culture, if individual values are shared, they represent the group's values (Erez & Gati, 2004). The mean was used to aggregate individual scores because culture is not only a central value but the literature suggests that individual cultural views aggregate at the group level (O'Reilly, Chatman, & Caldwell, 1991). There should be substantial agreement between individuals; if the results indicate disagreement with individual views, the results are unreliable and indicate there are no shared norms (Kozlowski & Klein, 2000).

To determine within-group consensus, a measure of agreement was used. The measure of agreement is a modified version of the r_{wg} coefficient by James et al. (1984) that related within-group variance on a single item to compare to the maximum variation possible or complete random variance. This method assumes there is one true score and that all variance between scores represents error variance (Biemann, Cole, & Voelpel, 2012). The measure of agreement is represented on a continuous scale from 0 to 1. Harvey and Hollander (2004) suggest that any agreement coefficient below 0.90 should be scrutinized as their analysis showed that the 2.5 to 97.5 percentiles of scores fall between 0.83 and 0.97. Even though a modified measure of agreement was used, the 0.90 threshold value was retained. Therefore, coefficients on the lower end of this range may indicate there is a lack of group consensus.

To provide a better representation for compatibility, a percentage was calculated, since compatibility scores of -1, 0, and 1 may not be immediately familiar when compared to compatibility scores of 0%, 50%, or 100%. For example, if a score is less than 50%, it could represent a degree of incompatibility and score above 50% could represent a degree of compatibility. However, with the lack of any empirical evidence, suggestions are only notional. Additional empirical data may eventually show that a higher or lower percentage may represent the compatibility line. The final results were presented as percentage compatibility, along with the measure of agreement, to provide an indicator of how strong of a measure that compatibility represents the group. The model of this methodology is shown in Figure 3.
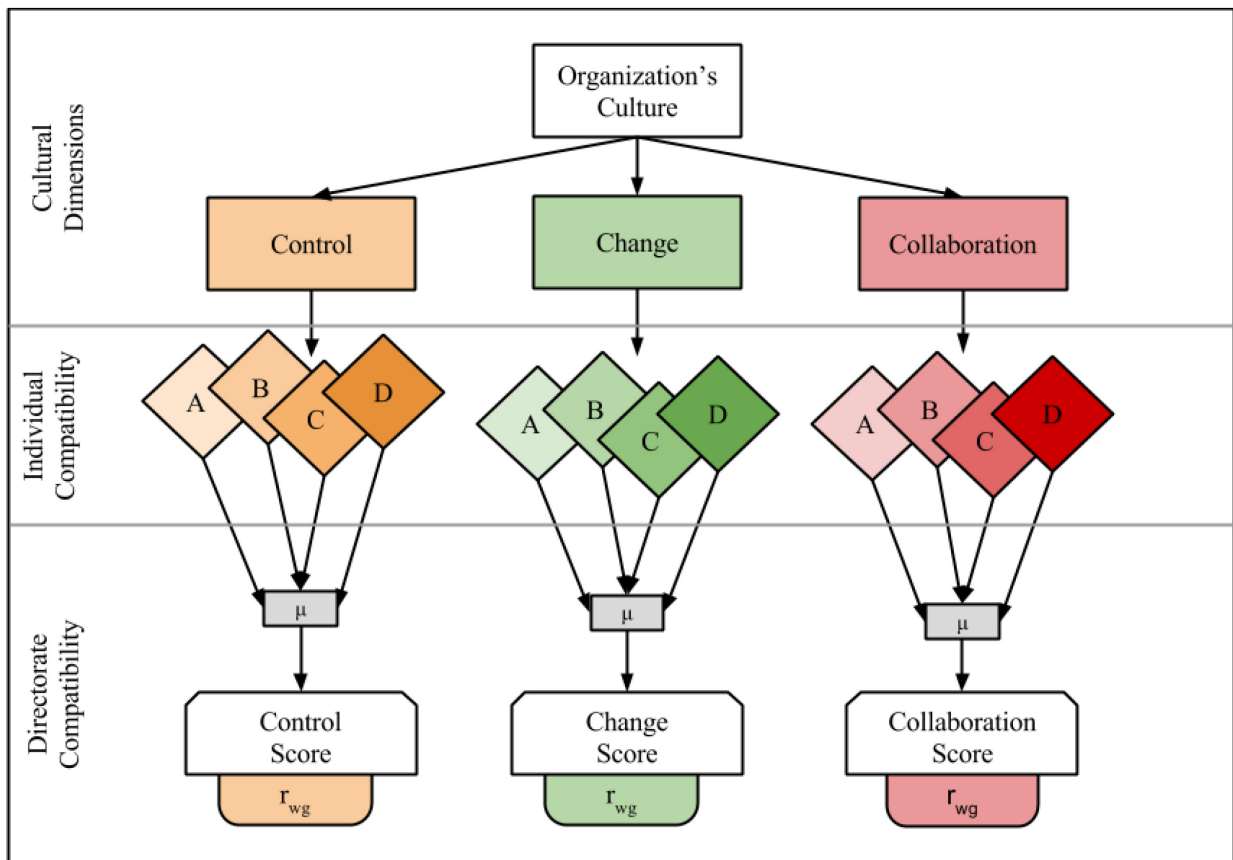
Figure 3. Organizational Culture Score Model

Reliability Assessment

Under ideal circumstances, the effectiveness of this methodology can be compared to an organization's success or failure in the actual implementation of hybrid workspaces. Prior to implementation of hybrid workspaces, this research's method could be used to measure an organization's compatibility. If the results are favorable, the organization can implement hybrid workspaces. After implementation, the organization can be assessed to determine if there is a benefit or detriment to the organization. The results may give an indicator as to the accuracy of the method and help build empirical evidence to identify thresholds for compatibility.

To validate the interview questions, an anonymous survey was administered to the same interview subjects from the P&I and Finance directorate. The questions were selected from proven Likert scale survey questions regarding organizational culture (Campion, Medsker & Higgs, 1993; Morgeson, Medsker, Campion & Mumford, n.d.). The goal was to act as a sanity check to determine if there were any potential biases within the wording of the interview questions. Because of this research's scope limitations, a larger survey was not possible. In general, the results from this methodology should align with the survey's responses at the group. This can provide an indicator as to whether there may be any biased wording in the questions asked during the interview. The questions selected for the survey can be found in Appendix F.

Summary

The methodology outlined above represents a notional framework that may ultimately act as a tool for leadership to determine the compatibility of hybrid workspaces within their organization. The following chapter will report the results, and Chapter V will present the conclusions and offer responses to the research questions proposed in Chapter I.

IV. Results and Discussion

This chapter discusses the results generated through the methodology in Chapter III. The results are presented by directorate, followed by the results from the coding validation and reliability assessments. The coding log used to aggregate the participants responses from the interviews can be found in Appendix E. Conclusions for these results will be discussed in Chapter V.

P&I Directorate Results

The data analyzed for the P&I directorate yielded interesting results. The histogram in Figure 4 shows that the frequency of each individual dimensional score fell within different ranges. The "Collaboration" and "Control" dimensions seem to indicate one consistent group without minimal gaps. However, the "Change" dimension highlights a possible subgroup within the P&I directorate. Three out of the eight individual scores measured on the side of extreme incompatibility; this measure differs greatly from the five other individuals with scores on the positive side of the spectrum. The number of responses coded for each of the three individuals was similar to the other five individuals, so it does not seem that the difference is due to a limited number of responses from participants. Because of the small sample size, it is difficult to determine if these three participants are part of a larger subgroup or outliers in their own right.
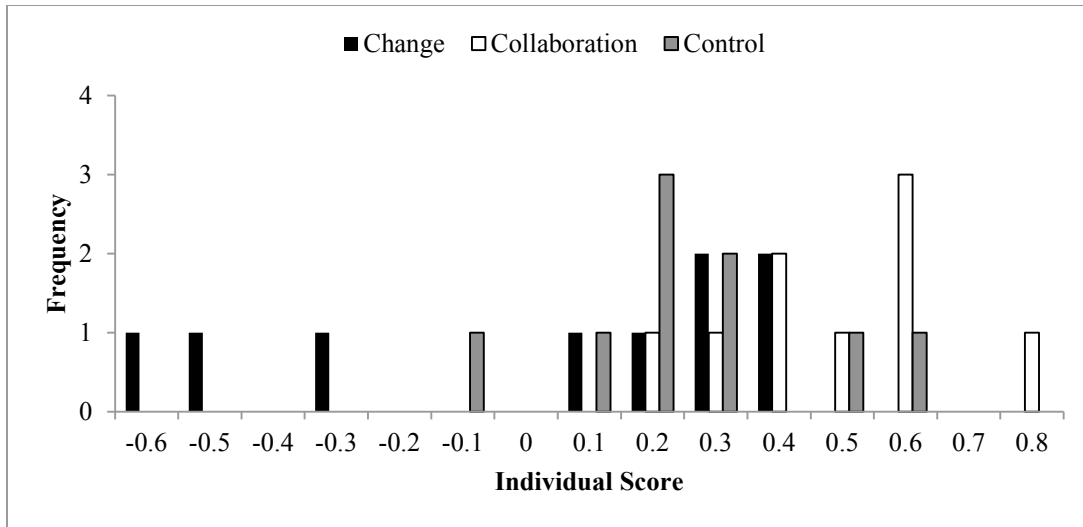
Figure 4. Histogram of P&I's Individual Scores

Table 5 represents the results when the P&I individual data is aggregated to the directorate level. "Collaboration" and "Control" show a degree of compatibility at 71 percent and 59 percent, respectively. The measure of agreement is 0.97 and 0.96, respectively, which is well above the 0.90 threshold to indicate group agreement. However, the measurement of P&I's "Change" dimension indicates a relatively neutral score of 53 percent with an agreement coefficient of 0.86. Based on the fact that the distribution in Figure 5 showed a possible subgroup within the organization and the fact the agreement coefficient is below 0.90, P&I's "Change" score should be examined, as there is not enough evidence to support consensus within the group. The individual data for the "Change" score shows there are three individuals that fall far outside the rest of the group. Due to the small sample size, it is difficult to determine whether these three individuals are outliers or part of a larger subgroup within the organization. In this case, it would seem appropriate to assert that there may be no agreement in this dimension.

Table 5. P&I Compatibility Scores

	Change	Collaboration	Control
Compatibility	53%	70%	59%
Agreement Coefficient	0.86	0.97	0.96

Finance Directorate

As expected, the finance directorate demonstrates different compatibility scores than the

P&I directorate. The histogram in

Figure 5 shows there is a high degree of variability for the "Change" and "Collaboration"

dimensions with a range of -0.8 to 0.5.   The "Control" dimension's range is smaller when

compared to P&I's dimension.
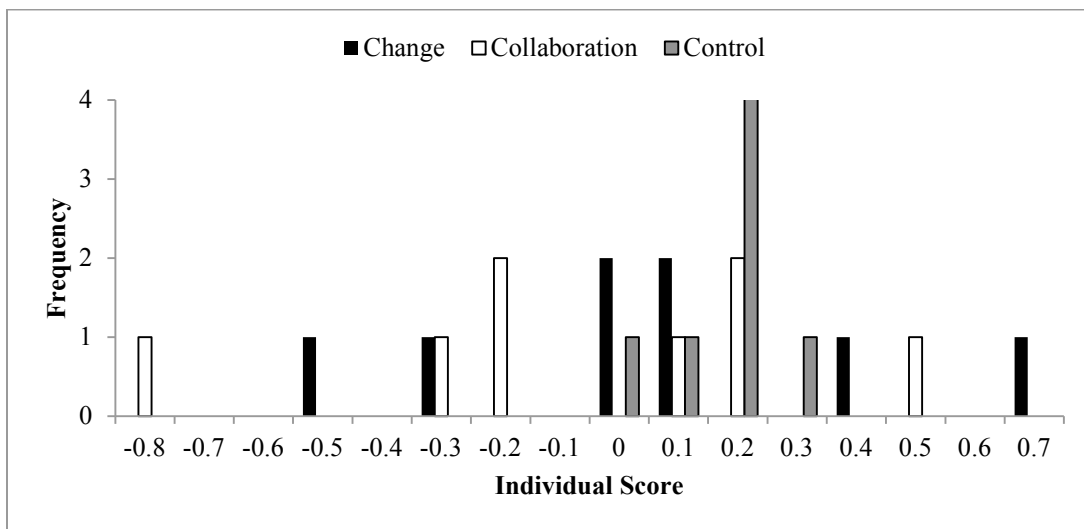
Figure 5. Histogram of Finance's Individual Results

Table 6 shows how individual scores aggregate to the Finance directorate level. The "Change" and "Collaboration" compatibility scores are slightly above or below neutral with 54 percent and 46 percent, respectively, and indicate a measure of agreement of 0.85 and 0.84, respectively, which are well below the acceptable threshold of 0.9. Upon examination of the individual scores, there is one individual in the "Collaboration" dimension who had an extreme negative score and without a doubt had a large effect on the measure of agreement. Based on the individual's interview responses, it seems likely that this individual is an outlier and may not be part of a larger subgroup. Without this individual's score, the measure of agreement would be 0.9 indicating agreement within the group. As far as the "Change" dimension is concerned, the measure of agreement seems to be influenced by two individuals who show negative compatibility. Because of the small number of participants from Finance, these two individuals could represent a larger subgroup. The "Control" dimension's score is similar to the P&I score at 60 percent with a measure of agreement of 0.99, thereby indicating consensus in that dimension. In addition, from the interviews conducted with AFCEC, it was evident that open concept spaces restrict efficiency because of the lack of alternative spaces. Several AFCEC employees voiced this complaint and would find other areas to work, such as the nearby dining facility, their car, or base library.

Table 6. Finance Compatibility Scores

	Change	Collaboration	Control
Compatibility	54%	46%	60%
Agreement Coefficient	0.85	0.84	0.99

Coding Validation Results

      The results from the peer evaluation indicated a measure of agreement between the researcher and peer of 0.88. The coefficient is below the threshold of 0.9 and may indicate a lack of consensus. A detailed review of the peer evaluation indicated 17.8% of the codes varied by one unit on the 3-unit scale. For example, if the author coded a statement with a 0, the peer evaluator coded it with a 1. When all responses were considered, the author and peer evaluator had equal differences on both sides of the spectrum. This may indicate the error may be measurement error and not necessarily the result of any coding bias on the researcher's part.

      In only one out of the 45 responses was there a completely different interpretation on either side of the 3-point scale. In this one case, the author's interpretation was more conservative in that it was coded as a negative compared to the positive from the peer's assessment. This instance was the result of the author having access to more of the participant's context in the audio recording from the interview. Adding context to the transcription, the peer agreed with the author's coded response. Removing this one data point increases the measure of agreement to 0.92, thus indicating consensus between the researcher and peer. A detailed summary of the peer's coding evaluation can be found in Appendix C and Appendix D.

Reliability Assessment Results

      The questionnaire administered to the P&I and Finance directorates received 6 and 3 responses, respectively. P&I and Finance showed similar results under the control dimension, while the P&I responses were generally higher than the Finance responses for "Collaboration" and "Change." The results for the reliability assessment are summarized and compared to the overall results in table 7.

Table 7. Reliability Assessment Results

	Control	Collaboration	Change
P&I	3.93	3.83	4.11
Finance	4.07	3.58	3.11

Alone, the questionnaire scores may not be useful due to the lack of response. For comparison purposes, the results from the study and reliability assessment are presented in Table 8. To provide a simple comparison, the Likert type responses were converted to a percentage with 1 representing 0% and 5 representing 100%. It is difficult to make useful comparisons with the reliability assessment as the responses to the questionnaire were limited. Due to these limitations, the pool of potential participants in the organizations was limited to the initial participants in the study.

Table 8. Interview and Questionnaire Results

	Control	Collaboration	Change
P&I (Interview)	53%	70%	59%
P&I (Questionnaire)	73%	71%	78%
Finance (Interview)	54%	46%	60%
Finance (Questionnaire)	77%	65%	53%

While only half of the compatibility scores indicated a measure of agreement, there is enough information to provide discussion on what the results indicate in terms of the P&I and Finance directorate's compatibility with hybrid workspaces. The next chapter will discuss the results and provide answers to the research and investigative questions proposed in Chapter I.

<center>**V. Conclusions**</center>

The results in Chapter IV provided useful information to suggest possible answers to the research questions. While only half of the cultural compatibility scores yielded a consensus within the two organizations, the data is still useful in generating conclusions and suggestions for further research. This chapter will offer a review of the investigative and research questions to develop conclusions from the research. Then it will discuss the effectiveness of the developed model, recommendations for future research, and conclude by summarizing the possibilities for organizations that decide to adopt the hybrid workspaces concept.

Review of Investigative Questions

The research overall attempted to answer the question: *"How does an organization's culture demonstrate it is feasible to use hybrid workspaces to improve space utilization efficiency and organizational efficiency?"* A possible method to quantify how organizations demonstrate the feasibility in terms of their cultural compatibility was subsequently developed. The feasibility can be demonstrated by measuring three different cultural dimensions (i.e., Control, Change, and Collaboration) that work either for or against the hybrid workspace concept.

Question A asked, *"How would hybrid workspace layouts support or oppose members' work styles?"* The P&I directorate demonstrates that the hybrid workplace would complement the culture. The culture, in general, favors collaboration so a workspace centered around collaboration would be a benefit to the organization. This result makes sense in a number of ways. For example, P&I was created just over a year ago, and its culture is relatively young and

relies on the cross-flow of ideas to promote innovation. P&I's mission is to identify new and creative ways to improve Air Force Civil Engineering. The Finance Directorate, however, showed a vastly different propensity for hybrid workspaces than P&I. The results show that there was no consensus towards collaboration or individual work as an organization. This could indicate that there are many types of work to include members who collaborate on a routine basis. Finance is not a new office and is run by rules, regulations, and law. In some cases, most of the work can be accomplished on an individual basis, so it would make sense that traditional workplaces could suit the culture well enough.

Question B asked, "How would managerial control change compared to traditional workspaces?" In both cases, Finance and P&I demonstrate that current managerial control may be compatible with hybrid workspaces and there would be no need to change the culture. Both directorates emphasized performance-based rewards and gave employees the flexibility to determine how to accomplish their daily tasks. The majority of employees are high level civil servants who have proven themselves to be self-motivated and have the ability to manage their own schedules. The results only speak for these two directorates, but it would be interesting to see how managerial control changes in different organizations. In addition, it is encouraging to see similar scores since these two military organizations share the same parent organization (i.e., AFCEC). Of the three different dimensions, "Control" is a dimension that would be expected to be similar across other military organizations due to the nature of the military's command and control structure. The similarity may be a small indicator that adds validity to the compatibility model. Nevertheless, the results reinforce the notion that the managerial control in the two directorates would not have difficulty adapting to hybrid workspaces.

Question C asked, "How receptive would members be to a change towards hybrid workspace environments?" Not surprising, these results show that it could go either way; in general, members of both directorates do not show agreement with members on either side of the spectrum. However, it is surprising to see that P&I had a split consensus. In general, members of the P&I directorate were positive toward change and "thinking outside the box." While some members were very comfortable with a change toward hybrid workspace, there was also a group with which it would be incompatible. In a way, this makes sense because, as mentioned above, the majority of these individuals have been in the Air Force for decades and have grown accustomed to traditional workspaces. Expectations of a corner office with a view is still very much a reality, and while those individuals may articulate the need for collaboration, it is not as important as status and the idea that rank has its privileges. In short, the results show that if change is going to happen, a valid reason needs to exist to ensure members are on board with the change. There will always be those who avoid change with more energy than it takes to accept it, and as the literature suggests, leaders who want to implement a change toward hybrid workspace need to be empathetic toward those that might resist and ensure they lead by example.

Review of the Research Question

Overall, the answers to these questions provide useful insight regarding the research question asked in Chapter I. The P&I demonstrates that it may be feasible to utilize hybrid workspaces because they are a collaborative organization and managerial control is centered around performance. Even though P&I did not have consensus with the change dimension, it would seem there is enough positives to overcome any resistance. It is important to note that the small subgroup that resists change may act to inhibit change as well if they are influential with

their peers. However, Finance as an overall culture would need more convincing to adapt hybrid workspaces.

Without a larger study, it is difficult to apply the results to other Air Force organizations. Cultures are unique and in general applying a general solution to implement hybrid workspaces would fail to meet the overall workspace concept. However, there is enough evidence to initially suggest the Air Force should further explore the feasibility of using hybrid workspaces to not only improve space utilization, but as a mechanism to improve organizational efficiency through enhanced collaboration. This research thus represents a first step in providing a method for organizational leadership to understand if their organization is compatible with hybrid workspaces.

Effectiveness of Model

The methodology and coding instructions proved to be effective after a sample of all the codes were validated by a peer. The results from the peer validation demonstrated the coding methodology was objective with any error centered on the mean of responses. Pre and post implementation characterizations should be considered to validate the overall effectiveness of this model. The reliability assessment was designed to validate the questions used in the interview to determine if the questions were useful in characterizing an organization's culture prior to the implementation of hybrid workspaces. The method could potentially act as a useful tool for leadership to decide whether it would be feasible to implement hybrid workspaces in their organization. However, due to the limited responses from the reliability survey, it would be inappropriate to suggest if the method can be generalized to all organizational cultures. Post implementation measurements that measure the success of hybrid workspace implementation

would provide an effective benchmark to determine the effectiveness of the model. Although, due to scope constraints, post implementation was not measured by this research. Future use of this model should fully consider these limitations, but, in the end, help further exploration in this field.

Recommendations for Future Research

This research provides useful data that should be used to generate a survey to make assessing organizations simpler. In its present form, the methodology of conducting open-ended interviews is time consuming and may inhibit proper assessment. It is suggested that these interview questions be expanded into a simple survey that can be sent to an organization to provide leadership a quick determination if their organization can implement hybrid workspaces. Because there is no precedence for the use of these results, future research should identify organizations most likely to be compatible with hybrid workspaces by using the scoring system outlined in this research. An analysis after implementation of hybrid workspaces can then determine if the change away from traditional workspaces was successful from the organization's perspective. The post-implementation analysis can then be compared to the pre-implementation analysis to validate the effectiveness of this methodology.

Even if the adoption of hybrid workspaces turns out to be a logical change for Air Force organizations, the ability to modify existing furniture systems should be researched. Current furniture systems are designed for traditional workspaces and utilizing a 6-foot high cubical in a hybrid workspace concept may not be the best choice depending on workspace. However, it is not cost effective to buy new furniture systems in the current fiscal climate. Therefore, methods on how to modify existing furniture or identifying furniture types and the workspace they occupy

can provide a useful tool for organizations wanting to make the change. For example, a 6-foot high cubical may be ideal in a library space within an organization for those times when individuals need to seek out solitary work environments.

Finally, while previous research suggests there is a cost benefit to implementing hybrid workspaces, possible future research should quantify this cost savings by analyzing existing organizational spaces in a traditional workspace model and conducting a virtual redesign of their space. A quantity takeoff of the new space can then be used to determine cost savings. Leadership can use the results from the quantity takeoff to determine the magnitude of fiscal benefits to their organization. These fiscal benefits and potential productivity enhancements may provide enough justification for leadership to adopt hybrid workspaces.

Summary

This investigation was meant to serve as a first iteration to assist in determining if hybrid workspaces are compatible with the Air Force culture. The research suggests that it may be feasible in some areas. However, by no means can this research be generally applied across all organizations. While, in theory, hybrid workspaces can fit all types of molds because it does not force a specific work style, the ability to demonstrate this quality is important for a meaningful revolution in workplace layouts. The move to hybrid workspaces represents a major change in organizational space layouts when compared to traditional methods. The act of designing spaces for the work accomplished rather than by position leads to extremely different workplace layouts. The Air Force prides itself on its flexibility, as is heard in a well-known chant, "Flexibility is the key to air power." So it would be appropriate if their workspaces were flexible and changeable as well.

Appendix A. Interview Script

This is Capt Richard Ellis, Thank you for taking time to participate in this interview. I am a student at the Air Force Institute of Technology at WPAFB in Ohio. Your organization has volunteered to be part of my space utilization study. The goal of my research is to study alternative methods of space arrangements to improve collaboration in the Air Force. This research is sponsored by Facility Design SMEs at AFCEC; Ralph Sinkfield and Sandra Warner. Your name is only used for tracking completion of the interviews and will not be referenced in the final research report. Names, directorates, and positions will be redacted when any quotes are utilized in the report. All personal information gathered in this interview is subject to the Privacy Act Statement of 1974 and will remain confidential.

Do you have any questions?

This interview will take around a half an hour to complete and will be recorded in order to transcribe and perform analysis of the interview for my research. As a reminder, this interview is voluntary. No adverse action will be taken against you if you choose not to participate.

Would you like to participate in this interview?

Thank you. Do you have any other questions before we proceed?

The following questions are designed to be open ended. Please take as long as you want to answer each question and answer each question with as much information and detail as you can.

SET A: Orientation to Change (stability vs. change)
1. Describe your current workplace layout.

2. I understand your organization will be moving to a new location. Describe your thoughts about the upcoming move.
    a. In what ways do you believe that the organization (directorate) will be different after the move?
    b. Why are you moving?

3. In your current workplace, describe any differences you have noticed in **Air Force processes** when compared to previous workplace you have worked.
4. When considering your previous Air Force workplaces, has the workplace you currently work in changed the way you think about your job?

5. What is the most important thing to you in a workplace (value)?
   Describe why space for displaying personal items is important in your workspace?

6. Discuss how the workplace accommodates/does not accommodate your workstyle?

7. If you were given the opportunity to work anywhere (I want to emphasize ANYWHERE) on an individual task, describe what space you would choose. (Does this consider office building)
   a. For a small group of 2-4 people?

SET B: Orientation to Collaboration (isolation vs. collaboration)
1. Consider individual work or team based/collaborative work, Describe the type of work you accomplish in typical daily tasks.
   a. What is a rough percentage of time for each type of task?

2. Do you think you are more rewarded for individual activities or for work on teams?
   a. How important is ~~project~~ teamwork to your directorate?

3. When considering tasks accomplished internal to AFCEC, how are project teams primarily constructed--are they mostly from the same directorate or from different directorates?

4. How would you describe the culture of your directorate? (What defines.)

5. Now imagine you need to quickly get a small group of 2-4 individuals together for an urgent collaborative task, describe the process you would go through to start this collaborative session. (What communications methods?)

6. On questions that you are uncertain of the answer, how do you primarily seek solutions to these questions?

7. How does your office seek to keep others in your organization(directorate) informed about goals?

SET C: Control, Coordination, & Responsibility (autonomous vs concentrated decision making)

1. How easy/difficult is it to gain access to people or resources in your directorate that might be helpful for individual or team projects?

2. Are employees encouraged to be 'free thinkers' and find new and creative ways to do their jobs?
   a. To what extent do rules and procedures govern your daily work activities?

3. Using centralized vs decentralized decision making to frame your answer, How would you describe the structure of your directorate?

4. What factors do you feel go into employee appraisals? Now, consider things such as time with your supervisor and workplace presence compared to the employee performance on tasks.

5. When considering supervisor influence, coworker influence, or self motivation, what has more of an effect to keep you working hard throughout the day?

6. How do you feel the current physical layout affects supervisor relationships?
   a. How does the criticality of the information influence supervisor control/monitoring?

SET D: Demographics

To wrap this up, I have two quick demographic questions. The answers will remain confidential.
1. How many years have you been in the Air Force?
2. How old are you?

Appendix B. Coding Decision Rules

The following represents the coding decision rules that were utilized to code each of the interviews. The valence referenced in the following rules orients in terms of hybrid workspace compatibility. For example if a participant speaks about moving to an area that is based on a traditional layout and mentions the negative effects of going back to a close office space because collaboration will be affected, this is coded as a positive valence towards Collaboration.

1. Only valanced statements will be coded. Specifically, statements are coded if they indicating satisfaction/support or dissatisfaction/non-support as a positive one or negative one respectively. Neutral statements to include mixed valanced statements will be coded as zero.

2. If two or more statements are part of, or help to support, the same response, they will be coded as one verbatim comment.

3. If two or more statements are separate, distinct responses, they will each be coded as one verbatim comment.

4. If two or more statements are the same response, but apply to more than one category, the response will be coded as two instances

5. Questions do not limit the number of responses that an individual can make. Each question can have multiple responses and will be coded according to rules 2 and 3.

6. In general, for the three cultural dimensions: If respondents are talking about an ideal or preferred state that the organization has not yet achieved, the statement will be coded in the negative direction.

7. In general, when operational definitions of categories are mentioned, the statement is coded in that category.

8. When the issues of 'orientation to change' are discussed, the statement is always coded in the following ways:
    a. Negative direction if the employee makes a statement that indicates resistance to change and in the positive direction if he or she is receptive to the idea of the change.
    b. Positive direction if the employee makes a statement that indicates resistance to change because the organization is moving away from the characteristics that make a hybrid work environment such as freedom to choose how to work, open environments, where to work, etc.

    c. Negative direction if the employee shows valence towards closed office, high walled cubicles, the need for personal space

9. When the issues of 'orientation to collaboration' are mentioned, the statement is always coded in the negative direction if an employee makes a statement that indicates work that is individual work based and in the positive direction if he or she speaks about collaboration.

10. When the issues of 'control, coordination, and responsibility' are mentioned, the statement is always coded in the negative direction if an employee makes a statement that indicates the following:
    a. He or she's work is controlled by procedures.
    b. If he or she talk about centralized decision making
    c. employee appraisals are based on time spent in the workplace.
    d. there is no social influence
    e. negative supervisor relationships, such as poor communication and mentorship
    f. are unaware of the reasons for change

11. When the issues of 'control, coordination, and responsibility' are mentioned, the statement is always coded in the positive direction if an employee makes a statement that indicates the following:
    a. Their work allows for free thinking.
    b. If he or she talks about decentralized decision making
    c. employee appraisals are based on project results.
    d. there is social influences in the workplace
    e. positive supervisor relationships
    f. aware of the reasons for changes

12. When in doubt (if not clearly in a category), don't code.

Appendix C. Peer Evaluation Worksheet

Traditional Workspaces	Hybrid Workspaces
- Cubicles (High Walled & Assigned) - Offices - Assigned Spaces - No work rooms - conference rooms that require scheduling	- Open Spaces - Not assigned - Many Varieties (Cafe, Quiet, Open, etc) - Collaborative Spaces - Spaces don't need to be scheduled

[CHANGE]

Describe your current workplace layout.

Criteria – (Does the participant understand the reason for change)

30 [A1-1] "we are in this configuration based on the lack of space in our current organization"

          PEER: No ——- **Neutral** ——— Yes

          AUTHOR: No ——- Neutral ——— **Yes**

33 [A1-1] "the plan is to move people from building 171 to building 550 which will free up space and enable P&I to have a permanent solution... it could take a number of months until all that transpires"

          PEER: No ——- Neutral ——— **Yes**

          AUTHOR: No ——- Neutral ——— **Yes**

I understand your organization will be moving to a new location. Describe your thoughts about the upcoming move.
- **In what ways do you believe that the organization will be different after the move?**

Criteria – (Does the participant favor change away from traditional office/cubicle workspaces?)

9 [A2-1] "well move always generates turmoil, it upsets the flow and dynamics of you organization so while moves can ultimately be a good thing, in the interim and even sometime shortly after there is always disruption."

          PEER: No ——- **Neutral** ——— Yes

          AUTHOR: No ——- **Neutral** ——— Yes

2 [A2-2] "I do have concerns about losing the teamwork aspects of the current structure" [in moving from workplace with a teaming layout to a new unknown area]

          PEER: No ——- Neutral ——— **Yes**

AUTHOR: No ———- Neutral ————— **Yes**

7 [A2-2] "i think once the directorate moves and they are able to get all the personnel into their individual cubicles, it provides a better office type cubicle environment in order for them to be able to do their own business, we work alot with DCOs and conference calls and when you have your own cubicle it provides you own privacy... i think we will be more effective in the long run. The conference room is not very conducive to the working."

PEER: **No** ———- Neutral ———— Yes
AUTHOR: **No** ———- Neutral ———— Yes

39 [A2-3] "i like having [my section] together... if they just pool us together and leave us alone... thats a better way to run an organization."

PEER: No ———- Neutral ———— **Yes**
AUTHOR: **No** ———- Neutral ———— Yes

Why are you moving?
Criteria - (Does the participant understand the reason for change)

41. [A2-3] "well the general discuss, due to the limited number of spaces they had planned to move us around...because the current workplace does not allow more of a team concept and there is not enough room to put all of the employees within the area sectioned off for us."

PEER: No ———- Neutral ————— **Yes**
AUTHOR: No ———- Neutral ———— **Yes**

16 [A2-4] "lets say i have 10 people my branch, we need like 12 slots, so they are trying to make room for the reorganization to take a place [for the empty spots]. AFCEE merged with AFCEC it is still its been over a year now ... there is just so many people ... i think that has been one of the issues is how to figure out how to fit this many people in the space ... We don't have the room"

PEER: No ———- Neutral ————— **Yes**
AUTHOR: No ———- Neutral ———— **Yes**

When considering your previous Air Force workplaces, has the workplace you currently work in changed the way you think about your job?
Criteria – (Does the participant favor traditional office/cubicle or flexible/hybrid workspaces?)

1 [A4-1] "I was offered a [cubicle], I have never been so thankful to be in a cubicle after being in conference room, there are other people who just love working in the conference room"
PEER: **Traditional** ———- Neutral ——— Flexible/Hybrid Spaces
AUTHOR: **Traditional** ———- Neutral ——— Flexible/Hybrid Spaces

10 [A4-1] "yeah it has, i spent 32 years so i worked a lot of places... the way it is going right now, i don't understand it, we need to work together as a team and not be separated ... i much rather have the people who work with me around me and they are talking about separating us right now"
PEER: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

What is the most important thing to you in a workplace (value)?
Criteria – (Does the participant favor traditional office/cubicle or flexible/hybrid workspaces?)

4 [A5-1] "i think i value the team concept...people working directly with me, there is not much privacy here, which is something we would all value, but we are here to do a job so i value the ability to work with people closely"
PEER: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

12 [A5-1] "ability to find conference rooms, on a regular basis, that's important, ... one thing i liked a AFPC was getting our stuff to be ergonomic"
PEER: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

38 [A5-3] "interacting with other people is important, the opportunity to have an undistracted chat with 3 individuals [in my current space] before you need to find a conference room can be an irritant at times when finding that space becomes difficult. Here in B171 we have seen people ...[that] have attempted to turn the cafeteria into a multiuse space ... so 4 or 5 [people] can chat about this or that."
PEER: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

Describe why space for displaying personal items is important in your workspace?
Criteria – (are personal items favored?)

32. [A5-2] "I don't think that's important"
          PEER: **No** ———- Neutral ——— Yes

AUTHOR: **No** ———- Neutral ——— Yes

Discuss how the workplace accommodates/does not accommodate your workstyle?
Criteria – (Does the participant favor traditional office/cubicle or flexible/hybrid workspaces?)

28 [A6-1] "hosting people and engaging with people...it is difficult when TDY visitors come in or.... other folks... it is impossible to host people in my assigned cubicle...it creates the inefficiency of needing to schedule a conference room...or devoting a good part of the day to meet at a regional location downtown... that could be a 15-20 minute drive away and thats a concern... Being able to have those interpersonal relationships... those [relationships] are affected"
PEER: Traditional ———- **Neutral** ——— Flexible/Hybrid Spaces
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

If you were given the opportunity to work anywhere (I want to emphasize ANYWHERE) on an individual task, describe what space you would choose. (Does this consider office building)
- **For a small group of 2-4 people?**

Criteria – (Does the participant favor traditional office/cubicle or flexible/hybrid workspaces?)

34 [A7-1] "i've been known to run over to... the base library...find other available office space, base ops, legal office, etc"
PEER: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

5 [A7-1] "I would recommend something with at least 3 walls and up to 6 feet high, in a place that has more solitude and quiet, don't need a door, just need to have some time without the noise interrupting with my train of thought and from people sneaking up behind me"
PEER: **Traditional** ———- Neutral ——— Flexible/Hybrid Spaces
AUTHOR: **Traditional** ———- Neutral ——— Flexible/Hybrid Spaces

24 [A7-1] "if its a small task and i'm working on it by myself... teleworking works quite well. I have my small office in my house setup for teleworking."
PEER: Traditional ———- **Neutral** ——— Flexible/Hybrid Spaces
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

25 [A7-2] "we have workrooms that work pretty good for 2-4 people"

PEER: Traditional ———- **Neutral** ——— Flexible/Hybrid Spaces
AUTHOR: Traditional ———- Neutral ——— **Flexible/Hybrid Spaces**

[COLLABORATION]

Consider individual work or team based/collaborative work, Describe the type of work you accomplish in typical daily tasks.
- **What is a rough percentage of time for each type of task?**

Criteria – (Is the majority of the participants work collaborative or individual?)

17 [B1-2] "everyone here has their own responsibilities... their own subject matter... it isn't necessary that you need to work together... can work as individuals, don't require anything but a computer to get the job done. There isn't a lot of collaborative teaming on tasks going on."

        PEER: **Individual** ———- Neutral ——— Collaborative
        AUTHOR: **Individual** ———- Neutral ——— Collaborative

26 [B1-2] "collaborative I would say about .... 30 percent... 70 percent is working on computer"

        PEER: Individual ———- Neutral ——— Collaborative
        AUTHOR: Individual ———- Neutral ——— Collaborative

Do you think you are more rewarded for individual activities or for work on teams?
- **How important is ~~project~~ teamwork to your directorate?**

Criteria – (Is the participant rewarded for individual or collaborative work)

6 [B2-1] "the appraisals are the individual, probably you are best recognized for the team with the quarterly award."

        PEER: Individual ———- **Neutral** ——— Collaborative
        AUTHOR: Individual ———- **Neutral** ——— Collaborative

37 [B2-1] "i think as an individual"

        PEER: **Individual** ———- Neutral ——— Collaborative
        AUTHOR: **Individual** ———- Neutral ——— Collaborative

14 [B2-2] "its very important..mostly because ... what we do within our division... they are program managers and they are out there working across different teams in different directorates ... to ensure success of the programs that we manage. That teamwork piece is very important... it is a routine thing."

        PEER: Individual ———- Neutral ——— **Collaborative**
        AUTHOR: Individual ———- Neutral ——— **Collaborative**

Now imagine you need to quickly get a small group of 2-4 individuals together for an urgent collaborative task, describe the process you would go through to start this collaborative session. (What communications methods?)
Criteria – (Does the participant prefer e-mail/phone or face to face communication methods)

8 [B6-1] "when i don't know the answer to questions, what i first start to do is seek the help of various personnel that i know, who i think may be able to provide an answer directly or have connections to others who can provide answers."
      PEER: E-mail/Phone ———- Neutral ——— **Face-to-Face**
      AUTHOR: E-mail/Phone ———- Neutral ——— **Face-to-Face**

21. [B5-1] "would check with the branch chiefs to see if the work room is available to quickly identify what the taskings is and alternative options and do a little brainstorming before breaking out with particular tasks"
      PEER: E-mail/Phone ———- Neutral ——— **Face-to-Face**
      AUTHOR: E-mail/Phone ———- Neutral ——— **Face-to-Face**

20 [B5-1] "well they just put webcams on everyone computers so its nice being able to talk to everyone in the field."... We are lucky we have a workroom that we have been able to keep... we can go in and put financial stuff on the big screen and kind of work through the numbers and come to a working solution... thats kind of nice....to bring people together in person or online."
      PEER: E-mail/Phone ———- Neutral ——— **Face-to-Face**
      AUTHOR: E-mail/Phone ———- Neutral ——— **Face-to-Face**

44 [B5-1] "understanding the mission.. the task at hand... And if in a manner quickly... compose a ms outlook meeting invitation... and getting that broadcasted out as soon as possible"
      PEER: **E-mail/Phone** ———- Neutral ——— Face-to-Face
      AUTHOR: **E-mail/Phone** ———- Neutral ——— Face-to-Face

45 [B5-1] "mostly email... seems to be the fastest way."
      PEER: **E-mail/Phone** ———- Neutral ——— Face-to-Face
      AUTHOR: **E-mail/Phone** ———- Neutral ——— Face-to-Face

How does your office seek to keep others in your organization(directorate) informed about goals?

Criteria – (Routine face-to-face communication or e-mail/one-way communication)

35. [B7-1] "generally we have a staff meeting once a week with all the division and branch chiefs to discuss goals, if it is a real major one we will have a group meeting in the main area to discuss if there is something big coming, like in the event of the furlough"
PEER: Face-to-Face communication — **Neutral** —– e-mail/one-way
AUTHOR: Face-to-Face communication — **Neutral** —– e-mail/one-way

34 [B7-1] "basically emails get sent out and have periodic staff meetings where the director talks to people about what's going on... he asks for questions and gets feedback"
PEER: **Face-to-Face communication** — Neutral —– e-mail/one-way
AUTHOR: **Face-to-Face communication** — Neutral —– e-mail/one-way

42 [B7-1] "when we first started we had a directorate meeting and then we could break them down to the lower levels...we have a new person [directorate chief] and have not had a meeting since"
PEER: Face-to-Face communication — Neutral —– **e-mail/one-way**
AUTHOR: Face-to-Face communication — Neutral —– **e-mail/one-way**

40 [B7-1] "one innovative example is management convened a weekly session called P&I educational sessions...used the staff to suggest topics...what do you [the staff] want to learn about. In some cases some of us [community planners] came forward and volunteered to do an hour block on what are these products [community planning products]."

PEER: **Face-to-Face communication** — Neutral —– e-mail/one-way
AUTHOR: **Face-to-Face communication** — Neutral —– e-mail/one-way

27 [C4-3] "personally, i would feel in our role, we use the internet and email like 90% of the day to do our job, if the computers went down we would cease to exist because we rely so heavily to send emails to our bosses to give them information on where we are... to get our job done... or asking for vectors. we rarely... and i would say this would be a fault of our leadership, ... i have been preaching more staff meetings... there are no facetime meetings at this point of time"
PEER: Face-to-Face communication — Neutral —– **e-mail/one-way**
AUTHOR: Face-to-Face communication — Neutral —– **e-mail/one-way**

[CONTROL]

Are employees encouraged to be 'free thinkers' and find new and creative ways to do their jobs?
  - **To what extent do rules and procedures govern your daily work activities?**

Criteria – (Are employees encouraged to be free thinkers?)

3 [C2-1] "Yes, they are..."
>> PEER: **<u>Yes</u>** ———- Neutral ——— No
>> AUTHOR: **<u>Yes</u>** ———- Neutral ——— No

18 [C2-1] "absolutely"
>> PEER: **<u>Yes</u>** ———- Neutral ——— No
>> AUTHOR: **<u>Yes</u>** ———- Neutral ——— No

13 [C2-2] "we are bound by financial regulations...so as far as specific processes and stuff we are pretty heavily tied to systems procedures and separations of duties... that stuff"
>> PEER: Yes ———- Neutral ——— **<u>No</u>**
>> AUTHOR: Yes ———- Neutral ——— **<u>No</u>**

19 [C2-2] "I am bigtime rule follower, i am by the book"
>> PEER: Yes ———- Neutral ——— **<u>No</u>**
>> AUTHOR: Yes ———- Neutral ——— **<u>No</u>**

22 [C2-2] "not much... there is a lot of latitude here to govern your schedule... its not like a typical organization where you show up and everything is pre planned for you.. it requires people who are self motivated ... get up and go type people. There is no formal processes that constrain employees"
>> PEER: **<u>Yes</u>** ———- Neutral ——— No
>> AUTHOR: **<u>Yes</u>** ———- Neutral ——— No

Using centralized vs decentralized decision making to frame your answer, How would you describe the structure of your directorate?
Criteria – (Is decision making centralized or decentralized?)

36 [C3-1] "in all decision making there is different hierarchies of decision making and some of those decisions you can make at a certain level and others need to be accomplished at a higher level approval process. In our directorate some of our decisions

... we try to make can affect personal all across the Air Force... So before you can implement it it has to have the approval of senior leadership."

PEER: **Centralized** ———- Neutral ——— Decentralized

AUTHOR: **Centralized** ———- Neutral ——— Decentralized

15 [C3-2] "sometimes i didn't understand what the end goal was..i didn't see the bigger picture"

PEER: Centralized ———- **Neutral** ——— Decentralized

AUTHOR: Centralized ———- **Neutral** ——— Decentralized

What factors do you feel go into employee appraisals? Now, consider things such as time with your supervisor and workplace presence compared to the employee performance on tasks.

Criteria – (Are participants graded by performance or for time spent in the office?)

11 [C4-1] "you can talk a good game, but at the end of the day you need to produce a strategy to get to senior leaders, ... got to have a vision, .. people skills communication skills"

PEER: **Performance** ———- Neutral ——— Time Spent in the Office

AUTHOR: **Performance** ———- Neutral ——— Time Spent in the Office

29 [C4-1] "whether you turn in your work on time... free from errors... is it on a daily basis.. are you able to make decisions and do your own work or are you constantly looking for how do i do [certain tasks]...the majority of the appraisal is based on individual work and... if they are a team player."

PEER: **Performance** ———- Neutral ——— Time Spent in the Office

AUTHOR: **Performance** ———- Neutral ——— Time Spent in the Office

When considering supervisor influence, coworker influence, or self motivation, what has more of an effect to keep you working hard throughout the day?

Criteria – (Coworker influence/Self motivation or Supervisor Influence)

43 [C5-1] "self motivation"

PEER: **Coworker Influence/Self motivation** —— Neutral ——Supervisor Influence

AUTHOR: **Coworker Influence/Self motivation** —— Neutral ——Supervisor Influence

How do you feel the current physical layout affects supervisor relationships?
Criteria – (Is supervisor relationships positively affected?)

23 [C6-1] "i would say it would be awkward..i think the team concept thats good for the employees, but think as a supervisor to be in the middle of your employees, they don't have the opportunity to speak to other supervisors... its all a collaborative environment... so that open concept where people who need privacy do not have it. I think its the supervisors who would need it."

       PEER: Yes ———- Neutral ——— **<u>No</u>**
       AUTHOR: Yes ———- Neutral ——— **<u>No</u>**

31 [C6-1] "because we are all cramped together.. its actually enhancing them [supervisor relationships]"

       PEER: **<u>Yes</u>** ———- Neutral ——— No
       AUTHOR: **<u>Yes</u>** ———- Neutral ——— No

Appendix D. Independent Peer Review Results

*Duplicate from random selection. Next response selected.

Evaluation #	Response ID	Author	Peer Evaluator	
1	A4-1	-1	-1	
2	A2-2	1	1	
3	C2-1	1	1	
4	A5-1	0	1	Conservative
5	A7-1	-1	-1	
6	B2-1	0	0	
7	A2-2	-1	-1	
8	B6-1	1	1	
9	A2-1	0	0	
10	A4-1	1	1	
11	C4-1*	1	1	
12	A5-1	1	1	
13	C2-2	-1	-1	
14	B2-2	1	1	
15	C3-2	-1	0	Conservative
16	A2-4	1	1	
17	B1-2	-1	-1	
18	C2-1	1	1	
19	C2-2	-1	-1	
20	B5-1	1	1	
21	B5-1	1	1	
22	C2-2	1	1	
23	C6-1	-1	-1	
24	A7-1	1	0	Generous
25	A7-2*	1	0	Generous
26	B1-2	-1	-1	
27	C4-3*	-1	-1	
28	A6-1	1	0	Generous
29	C4-1	1	1	
30	A1-1	1	0	Generous
31	C6-1	1	1	
32	A5-2	1	1	

33	A1-1	1	1	
34	A7-1	1	1	
35	B7-1	-1	0	Conservative
36	C3-1	-1	-1	
37	B2-1	-1	-1	
38	A5-3	1	1	
39	A2-3	-1	1	Conservative / Context Error
40	A7-1*	1	1	
41	A2-3	1	1	
42	B7-1	-1	-1	
43	C5-1	1	1	
44	B5-1	-1	-1	
45	B5-1	-1	-1	

Appendix E. Coded Responses from Interviews

The following appendix contains the coding log for each of the participant's responses. The "P"

represents participants from the P&I directorate and the "F" represents participants from the

Finance directorate.

P1				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:40:00	Change	-1	state that has not been reached
A2-2	3:15:00	Change	0	
A2-3	3:40:00	Change	1	aware of reason for change
A4-1	6:10:00	Change	-1	
A5-1	8:00:00	Change	-1	
A6-1	9:50:00	Change	1	
A7-1	11:45:00	Change	-1	
A7-2	12:05:00	Change	-1	
B1-1	13:12:00	Collaboration	1	
B2-1	14:00:00	Collaboration	0	
B2-2	14:45:00	Collaboration	1	
B4-1	16:30:00	Change	-1	
B5-1	18:30:00	Collaboration	1	
B6-1	20:00:00	Collaboration	1	
B7-1	20:25:00	Collaboration	-1	
C1-1	21:10:00	Control	1	
C2-1	21:50:00	Control	1	
C2-2	22:00:00	Control	1	
C3-1	22:55:00	Control	-1	centeralized decisions
C4-1	23:54:00	Control	1	
C4-2	24:30:00	Control	1	
C4-3	24:30:00	Control	-1	
C5-1	27:30:00	Control	1	
C6-1	27:56:00	Control	0	
C6-2	28:30:00	Control	0	
A3-1	4:40:00	Change	-1	speaks about state unit has not achieved

P2				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	6:35:00	Change	-1	state not yet achieved
A2-2	6:55:00	Change	-1	doesnt want change because sees no benefit
A2-3	8:00:00	Change	-1	state not yet acheived
A5-1	14:00:00	Collaboration	1	
A5-2	14:50:00	Change	-1	
A6-1	15:30:00	Change	1	
A7-1	16:58:00	Change	1	
A7-2	19:30:00	Change	1	
B1-1	20:30:00	Change	-1	
B1-2	20:20:00	Collaboration	-1	
B1-3	20:50:00	Collaboration	-1	
B1-4	21:35:00	Collaboration	-1	
B2-1	22:31:00	Collaboration	-1	
B3-1	23:33:00	Collaboration	1	
B4-1	26:50:00	Collaboration	1	
B4-2	27:30:00	Change	-1	
B4-3	27:50:00	Change	-1	
B5-1	29:51:00	Collaboration	1	
B5-2	29:40:00	Collaboration	1	
B5-3	30:25:00	Collaboration	1	
B5-4	30:54:00	Collaboration	1	
B6-1	31:40:00	Collaboration	1	
B7-1	32:40:00	Collaboration	-1	
C1-1	33:00:00	Collaboration	1	
C2-1	33:35:00	Control	1	
C2-2	34:20:00	Control	1	
C2-3	35:30:00	Control	1	
C2-4	35:00:00	Control	0	
C3-1	36:28:00	Control	1	
C3-1	37:10:00	Control	1	
C4-1	40:30:00	Control	0	
C5-1	41:35:00	Control	1	
C6-1	42:30:00	Control	-1	
C6-2	43:30:00	Control	-1	
C5-2	42:04:00	Collaboration	1	
C6-3	43:05:00	Control	-1	
C6-4	44:35:00	Control	-1	
A2-4	9:10:00	Change	1	Aware of reason for moving
A3-1	10:20:00	Change	-1	complaint about differences between new and old workspace
A3-2	11:20:00	Change	1	change not good because of impact to collaboration

P3				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:40:00	Change	-1	uncertain of status of move
A2-2	3:05:00	Collaboration	1	want to maintain collaboration
A2-3	4:00:00	Collaboration	1	enhanced collaboration
A2-4	4:40:00	Change	1	aware of reasons for change
A3-1	5:30:00	Collaboration	1	see value in collaboration
A5-1	7:15:00	Change	1	
A6-1	8:40:00	Change	1	enjoys the collaborative atmoshere
A7-1	9:20:00	Change	-1	perfers own office
A7-2	11:00:00	Change	1	likes open enviroment for working
B1-1	12:25:00	Collaboration	1	80-20 collaborative
B1-2	12:25:00	Change	1	mentions valence towards collaborative enviroment
B2-1	13:10:00	Collaboration	-1	individual based rewards
B5-1	17:00:00	Collaboration	1	perfers to engage with people to setup task
B6-1	17:55:00	Collaboration	1	perfers to engage with people to get solutions
B7-1	18:20:00	Collaboration	-1	internal communication and goal setting is based on email
C1-1	19:20:00	Control	1	access is as easy as going to find the individual
C2-1	20:00:00	Control	1	
C2-2	20:30:00	Control	1	freedom to choose the best method
C3-1	21:40:00	Control	-1	
C5-1	22:40:00	Control	-1	supervisor influence ways heavier
C6-1	23:20:00	Control	1	views working next to supervisor as a positive. positives outweight the negatives
C6-2	24:42:00	Control	-1	micromanagement

P4				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:00:00	Collaboration	1	bring the team together
A2-2	3:30:00	Collaboration	1	communication enhanced
A2-3	4:50:00	Change	1	aware of reason for change
A2-4	6:30:00	Change	-1	state not yet achieved
A5-1	12:00:00	Change	-1	desire for office and cubicle
A5-2	12:15:00	Change	-1	need for personal affects
A5-3	12:50:00	Change	1	positive towards care area
A5-4	15:30:00	Change	-1	need for personal affects
A6-1	16:15:00	Change	-1	need for personal space and office
A7-1	18:20:00	Change	-1	need for "corner" office
A7-2	21:00:00	Change	-1	valence towards close off work areas
B1-1	23:45:00	Collaboration	1	said majority is collaborative work
B1-2	25:48:00	Collaboration	-1	percentage breakdown is individual work
B2-1	28:20:00	Collaboration	0	50/50 view on importance between indvidiaul vs collaborative
B2-2	30:20:00	Collaboration	1	teamwork is critical x2
B5-1	43:40:00	Collaboration	-1	perfers email
B5-2	44:10:00	Control	-1	centeralized problem solving
B6-1	45:00:00	Collaboration	1	seeks out peers for problems solving
B7-1	46:50:00	Collaboration	1	tries community building
B7-2	47:50:00	Collaboration	1	discuss multiple perspectives in staff meetings. "Elevator speechs"
B7-3	48:50:00	Collaboration	1	multi directorate working groups
B7-4	48:50:00	Control	1	transparancy
C1-1	51:42:00	Control	-1	need to standup a section to heard the cats "control"
C2-1	54:30:00	Control	1	encouraged to think outside the box
C2-2	56:10:00	Control	-1	rules and procedures govern 99%
C3-1	57:50:00	Control	0	views both as positive

C3-2	61:55:00	Control	-1	decisions are opaque
C4-1	63:25:00	Control	1	production, communication, is important
C4-2	66:12:00	Control	1	indicates that more electronic communication is persistant
C4-3	68:00:00	Collaboration	-1	mentions there is a lack of communication and collaboration, the desire to have more meetings to promote discussion
C4-4	69:30:00	Control	1	uses more email to communicate with supervisor.
C4-5	69:30:00	Collaboration	-1	uses more email than face to face communication
C5-1	72:33:00	Control	1	self motivatin
C6-1	72:53:00	Control	-1	hard to find employees is bad
C6-2	76:36:00	Change	-1	dislikes how there are no close off spaces
C6-3	80:30:00	Control	-1	limited visibility leads employees to wonder what is critical. Employees cannot act on their own and are influenced by sudden whims

P5				
Assertion ID	Timestamp	Category	Score	Notes
A1-1	3:25:00	Change	-1	state not yet achieved
A1-1	3:25:00	Change	1	knows reason for change
A2-1	5:00:00	Change	1	working group to manage change
A2-2	6:25:00	Collaboration	1	
A2-3	6:45:00	Change	1	aware of reason for move
A3-1	8:05:00	Collaboration	1	positive towards collaboration
A3-2	7:30:00	Change	0	neutral towards change
A4-1	11:30:00	Change	-1	perfers cubicle
A5-1	13:00:00	Change	1	no desire to have personal stuff
A6-1	14:50:00	Collaboration	1	desire for more collaboration
A6-2	15:45:00	Change	1	desire to be colocated near team
A7-1	17:08:00	Change	1	receptive to idea of having a space that balances privacy and collaboration
A7-2	16:30:00	Change	-1	would perfer office or cubicle
A7-3	22:30:00	Change	1	desire for more small conference rooms
B1-1	23:30:00	Collaboration	-1	mainly individual work
B1-2	26:00:00	Collaboration	-1	30% collaborative
B2-1	26:45:00	Collaboration	1	
B2-2	27:10:00	Collaboration	1	teamwork is cruicial
B4-1	30:50:00	Collaboration	1	social gatherings
B6-1	32:18:00	Collaboration	-1	will try to find info himself first
B7-1	33:05:00	Collaboration	-1	emails to communicate goals
C1-1	33:38:00	Control	1	very easy
C2-1	33:45:00	Control	1	free thinklers
C2-2	34:00:00	Control	1	not much
C3-1	35:10:00	Control	-1	centralized decision making
C4-1	38:30:00	Control	1	doesnt make much difference
C5-1	39:55:00	Control	1	self motivation
C6-1	40:30:00	Control	-1	supervisors have a hard time finding their employees
C6-2	52:20:00	Control	-1	pinging on a regular basis

P6				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:20:00	Change	1	aware of reason for move
A2-2	5:05:00	Change	-1	
A2-3	5:45:00	Change	-1	not aware of reason for move
A3-1	7:00:00	Change	1	liked the change because it helped reduce meeting setup times
A5-2	9:20:00	Change	-1	thinks space should be larger so people can come to him
A5-3	10:20:00	Change	1	no need for personal items
A6-1	11:50:00	Change	1	need space to have conversations
A7-1	13:02:00	Change	-1	need for additional space inside his own space
A7-2	14:00:00	Change	1	need for space to conduct telecons
B1-1	15:20:00	Collaboration	-1	mainly phone calls
B1-2	16:20:00	Collaboration	-1	70% on the phone
B2-1	18:00:00	Collaboration	1	extremly important
B4-1	19:20:00	Collaboration	1	very communitive
B5-1	21:25:00	Collaboration	-1	perfers telephone and email
B6-1	22:25:00	Collaboration	1	seeks the help of others first
B7-1	23:50:00	Collaboration	1	
C1-1	24:20:00	Control	1	very easy to access people
C2-1	25:10:00	Control	1	
C2-2	25:45:00	Control	1	high level, encourage individual work
C3-1	26:32:00	Control	-1	decisions approved at higher level
C4-1	29:10:00	Control	1	based on performance
C5-1	30:45:00	Control	1	
C6-1	31:38:00	Control	-1	not condusive, views finding a quiet space as a negative
C6-2	32:40:00	Control	1	suggests updates are given at regular intervals and not reactionary

P7

Assertion ID	Timestamp	Category	Score	Notes
A1-1	1:50:00	Change	1	aware of reason for current work enviroment
A2-1	2:40:00	Collaboration	1	
A2-2	2:20:00	Change	1	doesn't want to change because of close nature of layout
A2-3	3:05:00	Collaboration	1	will miss collaboration
A2-4	3:50:00	Change	1	aware of change
A3-1	4:45:00	Change	1	likes because of collaboration, dislike because there are no areas for privacy
A4-1	6:18:00	Change	-1	uncertain about the future moves
A5-1	7:00:00	Change	1	likes loud enviroment
A5-2	7:50:00	Change	-1	
A6-1	8:30:00	Change	1	likes collaborative enviroment
A7-1	10:30:00	Change	1	favorable to collaborative enviroment
A7-2	10:00:00	Change	-1	desire for personal office space
B2-1	11:55:00	Collaboration	-1	individual work is rewarded
B1-1	11:10:00	Collaboration	1	80% is collaboration
B2-2	12:57:00	Collaboration	1	views teamwork as important
B5-1	16:26:00	Collaboration	1	perfers face to face
B6-1	17:00:00	Collaboration	1	seeks out people first
B7-1	17:34:00	Collaboration	1	use weekly P&I info sessions to promote cross flow of info
C1-1	18:10:00	Control	1	easy
C2-1	18:48:00	Control	1	
C2-2	20:00:00	Control	1	not on a daily basis
C3-1	21:30:00	Control	-1	needs to be approved centrally
C4-1	24:40:00	Control	-1	time with supervisor is more important
C5-1	25:40:00	Control	1	self motivation
C6-1	26:50:00	Control	0	neutral
C6-2	27:20:00	Control	-1	indicates there is control to prevent misconceptions and release of bad info to the public

P8				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:30:00	Change	1	aware of change
A2-2	4:30:00	Change	1	likes change because of collaboration
A5-1	8:52:00	Change	1	desire to reach out to folks
A5-2	9:50:00	Change	-1	
A6-1	10:30:00	Change	1	
A6-2	11:00:00	Change	-1	need for secrecy in some cases
A7-1	11:55:00	Change	1	telework program, dont need to be present
A7-2	13:20:00	Change	-1	close off area, personal area
B1-1	14:05:00	Collaboration	1	affinity towards group meetings
B1-2	15:00:00	Collaboration	-1	20% is collaborative
B2-1	15:38:00	Collaboration	-1	
B2-2	15:50:00	Collaboration	1	very important
B5-1	19:10:00	Collaboration	1	primarily face to face
B5-2	19:50:00	Change	1	desire for more collaborative spaces
B6-1	20:20:00	Collaboration	1	ask around first
B7-1	21:05:00	Collaboration	1	weekly education sessions
C1-1	22:55:00	Control	1	
C2-1	23:30:00	Control	1	
C2-2	24:50:00	Control	-1	governed by rules and procedures
C2-3	25:20:00	Control	1	encouraged to challenge rules and procedures
C3-1	26:15:00	Control	-1	need to go through the wickets for approval
C3-2	27:40:00	Control	-1	more controled than it has ever been
C4-1	31:10:00	Control	-1	face time is more important
C5-1	32:38:00	Control	1	coworker interaction
C6-1	33:40:00	Control	-1	desire to have closed enviroment
C6-2	34:50:00	Control	-1	indicates need to watch employees and help them through tasks

P9				
Assertion ID	Timestamp	Category	Score	Notes
A1-1	2:13:00	Change	1	aware of reason for change
A2-1	7:30:00	Change	-1	state not yet achieved
A3-1	13:50:00	Change	-1	need for paper printouts
A5-1	25:40:00	Change	-1	need for personal items
A5-2	26:20:00	Change	-1	desire to create a personal enviroment
A5-3	27:30:00	Change	1	need to find space for a quick collaborative session
A6-1	30:00:00	Change	1	desire to host people in the area and the need to schedule conference rooms
A7-1	35:15:00	Change	1	anywhere is acceptable is a good place to work
A7-2	36:21:00	Change	1	valence towards work tables or casual areas
B1-1	39:20:00	Collaboration	0	no affinity
B2-1	46:25:00	Collaboration	1	work on teams
B2-2	49:50:00	Collaboration	1	screams importance
B4-1	54:10:00	Change	1	forward looking, change
B5-1	55:10:00	Collaboration	-1	email preferred
B5-2	55:55:00	Control	-1	
B6-1	57:40:00	Collaboration	1	who has the expertise
B7-1	59:20:00	Collaboration	1	P&I educational sessions
C1-1	61:33:00	Control	1	has not been difficult
C2-1	62:30:00	Control	1	
C2-2	63:30:00	Control	-1	
C3-1	65:35:00	Control	-1	centralization
C4-1	71:05:00	Control	0	neutral view
C5-1	72:07:00	Control	1	team and self discipline
C6-1	73:35:00	Control	1	enhances because they are close by
C6-2	75:10:00	Control	1	indicates no micromanagement

F1				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	4:00:00	Change	0	
A2-2	4:50:00	Collaboration	1	more teaming opportunities
A2-3	5:25:00	Change	1	
A5-1	7:23:00	Change	-1	desires privacy
A5-2	8:30:00	Change	-1	
A6-1	9:50:00	Change	-1	
A7-1	12:00:00	Change	-1	traditional view of workplace
A7-2	11:00:00	Change	-1	
B1-1	12:50:00	Collaboration	-1	
B1-2	13:40:00	Collaboration	-1	
B2-1	14:11:00	Collaboration	1	teams more rewarded
B2-2	14:28:00	Collaboration	1	very important
B5-1	19:00:00	Collaboration	-1	email first
B6-1	20:05:00	Collaboration	-1	does not reach out to others
B7-1	20:40:00	Collaboration	-1	email and staff meetings
C1-1	21:10:00	Control	1	
C2-1	21:25:00	Control	1	
C2-2	21:46:00	Control	-1	
C3-1	22:25:00	Control	-1	
C4-1	22:50:00	Control	1	teamsmanship
C4-2	23:50:00	Control	1	job performance #1
C5-1	24:25:00	Control	1	self initiative
C6-1	24:55:00	Control	-1	separated people, finds it hard for supervision

F2				
Assertion ID	Timestamp	Category	Score	Notes
A1-1	1:50:00	Collaboration	1	
A2-1	2:10:00	Change	-1	uncertain of the details for upcoming move
A2-2	3:00:00	Change	-1	state not achieved
A2-3	3:50:00	Change	-1	
A2-4	4:20:00	Change	1	aware of change
A2-5	5:00:00	Change	-1	talk about desired state
A2-6	5:50:00	Change	-1	desire for closed off area
A2-7	6:55:00	Change	-1	likes close space
A3-1	8:10:00	Change	1	dislikes change because of impacts to collaboration
A4-1	9:20:00	Change	1	dislikes change because of impact to teamwork
A5-1	11:10:00	Change	0	values privacy and working together
A5-2	11:50:00	Change	1	
A6-1	12:20:00	Change	1	likes current setup
A7-1	13:50:00	Change	1	would like telework
A7-2	14:40:00	Change	1	sees practicality in having collaborative enviroment
B1-1	16:25:00	Collaboration	-1	behind the desk, no need to get up
B1-2	17:25:00	Collaboration	-1	only 10% talking to people
B2-1	18:22:00	Collaboration	-1	individual rewards
B2-2	20:45:00	Collaboration	1	teamwork is important
B5-1	24:00:00	Collaboration	0	perfers email, but will engage with her folks to start a session
B6-1	25:14:00	Collaboration	-1	limits self to certain individuals and lower level team
B7-1	26:50:00	Collaboration	-1	no sessions, limited interactions about goals
C1-1	28:00:00	Control	1	fairly easy
C1-2	28:35:00	Control	-1	
C2-1	28:52:00	Control	1	
C2-2	29:10:00	Control	-1	by the book
C3-1	29:40:00	Control	-1	centralized
C5-1	35:35:00	Control	1	self motivatino
C6-1	36:30:00	Control	1	separate locations would not affect relationships
C6-2	38:10:00	Control	1	

F3				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:00:00	Change	0	desire for no change if there wont be problems
A2-2	2:30:00	Change	1	doesn't like change because it will impact collaboration
A2-3	3:05:00	Change	1	aware of reasons for change
A5-1	5:35:00	Change	1	likes the team enviroment
A5-2	6:10:00	Change	0	
A7-1	7:00:00	Change	1	work at home
A7-2	7:20:00	Change	1	perfers team enviroment
B1-1	7:45:00	Collaboration	1	
B1-2	8:10:00	Collaboration	1	
B2-1	8:55:00	Collaboration	0	50/50 ratio
B2-2	9:20:00	Collaboration	1	teamwork is very important
B5-1	11:58:00	Collaboration	-1	communicaiton is limited
B5-2	12:25:00	Collaboration	1	email and face to face
B6-1	12:45:00	Collaboration	-1	regs or law, then supervisor
B7-1	13:10:00	Collaboration	-1	email and quarterly commanders calls
C1-1	13:42:00	Control	1	
C2-1	13:55:00	Control	1	
C2-2	14:13:00	Control	-1	every minute occurance
C3-1	14:45:00	Control	1	decentralized to the lowest level possible
C4-1	15:15:00	Control	1	how they perform
C4-2	16:00:00	Control	1	tasks speak for themselves
C5-1	16:40:00	Control	1	
C6-1	16:52:00	Control	-1	not a good thing in the current environment
C6-2	17:30:00	Control	-1	more monitoring the more critical

F4				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	3:40:00	Change	-1	not sure of details behind move
A2-2	5:00:00	Change	1	aware of reason for move
A5-1	7:50:00	Change	1	
A6-1	8:40:00	Change	1	current space is positive for the workstyle
A7-1	9:50:00	Change	-1	people need their own area
A7-2	10:30:00	Change	-1	would like to work inside personal space
B1-1	11:10:00	Collaboration	-1	no team tasks
B1-2	11:50:00	Collaboration	-1	don't need to interact
B2-1	13:55:00	Collaboration	0	
B2-2	14:40:00	Collaboration	-1	not important for tasks
B5-1	16:40:00	Collaboration	-1	email
B6-1	17:30:00	Collaboration	-1	regulations
B7-1	17:50:00	Collaboration	-1	staff meeting and then down
C1-1	18:48:00	Control	-1	get on the calendar and work it through email
C2-1	19:35:00	Control	1	
C2-2	20:14:00	Control	1	trust people to get the work done
C3-1	21:10:00	Control	-1	always make the final decision
C4-1	22:50:00	Control	1	
C5-1	23:52:00	Control	1	
C6-1	24:05:00	Control	1	not condusive when the supervisor is removed from the area, perfers supervisor nearby
C6-2	25:05:00	Control	-1	mentions monitoring of situation

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F5				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:35:00	Collaboration	1	wants interaction
A2-2	3:00:00	Change	0	indifferent to change
A2-3	3:45:00	Change	0	indifferent to change
A2-4	5:00:00	Change	1	aware of reasons for change
A3-1	6:10:00	Collaboration	1	sees the value of collaboration in an open space
A4-1	7:00:00	Change	0	no difference in opinion
A5-1	7:30:00	Change	1	transparent enviroments
A5-2	8:30:00	Change	1	
A6-1	9:50:00	Change	1	like enviroment because it encourage talking
A7-1	11:05:00	Change	1	
A7-2	12:00:00	Change	-1	views group work as a focused event
B1-1	13:00:00	Collaboration	-1	by yourself
B1-2	13:40:00	Collaboration	1	majority is meeting
B2-1	14:10:00	Collaboration	-1	individual rewards
B2-2	14:40:00	Collaboration	1	teamwork is important
B4-1	16:50:00	Collaboration	1	open door policy and social functions
B5-1	17:40:00	Collaboration	1	face to face, spontanteous
B6-1	18:52:00	Collaboration	-1	supervisor first
B7-1	19:25:00	Collaboration	-1	emails, quarterly commander's call
C1-1	20:35:00	Control	1	
C2-1	21:05:00	Control	1	flexibility in job
C2-2	21:55:00	Control	-1	
C3-1	22:18:00	Control	1	decentralized
C4-1	22:55:00	Control	1	can you do your own work and figure things out
C4-2	24:20:00	Control	0	
C5-1	24:25:00	Control	1	
C6-1	25:20:00	Control	-1	awkward, supervisor shouldnt be in the middle
C6-2	26:15:00	Control	-1	more hands on if it is more critical

F6				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	2:50:00	Change	1	
A2-2	3:30:00	Change	0	
A2-3	4:10:00	Change	1	aware of reason for change
A5-1	6:00:00	Change	-1	
A7-1	8:00:00	Change	1	
A7-2	8:45:00	Change	-1	needs to be closed in for team enviroment
B1-1	9:34:00	Collaboration	1	
B1-2	10:25:00	Collaboration	1	70% collaborative
B2-1	11:15:00	Collaboration	-1	individual, would like to see more teams
B2-2	11:45:00	Collaboration	1	
B4-1	12:40:00	Collaboration	1	social engagement
B5-1	13:30:00	Collaboration	1	face to face engagements
B6-1	15:00:00	Collaboration	1	ask employees first, judgement last
B7-1	15:40:00	Collaboration	-1	relay from staff mtgs, and quarterly meetings. one way
C1-1	16:17:00	Control	1	
C2-1	16:50:00	Control	1	
C2-2	16:58:00	Control	-1	talk about business rules
C3-1	18:00:00	Control	-1	decisions made at the directorate level
C4-1	18:35:00	Control	1	primarily job performance
C4-2	19:05:00	Control	1	
C5-1	19:45:00	Control	0	supervisor and peers
C6-1	20:57:00	Control	0	desire to be closer together for crossfeed of info, but wants privacy
C6-2	21:30:00	Control	-1	

F7				
Assertion ID	Timestamp	Category	Score	Notes
A2-1	3:30:00	Change	1	is ok with change because it removes disruptions
A2-2	4:05:00	Change	1	worried about some change because it would impact teaming
A2-3	5:00:00	Change	1	aware of reason for change
A3-1	6:30:00	Change	-1	does not like change to open bays
A4-1	7:00:00	Change	-1	only views the events happening around him as noise and not helpful
A5-1	7:30:00	Change	-1	need a quiet atmosphere
A5-2	8:15:00	Change	-1	
A6-1	9:00:00	Change	0	not accomidating but see some value
A7-2	10:50:00	Change	-1	views teamwork happens near the desk
A7-1	10:00:00	Change	-1	6 feet high walls, traditional workplace
B1-1	11:50:00	Change	-1	close off room
B1-2	13:20:00	Collaboration	-1	majority is solo efforts
B2-1	13:50:00	Collaboration	-1	solo rewards
B2-2	14:20:00	Collaboration	-1	teamwork is important 20% of the team
B4-1	16:35:00	Collaboration	1	comfortable enviroment
B5-1	16:55:00	Collaboration	1	immediate gathering into workroom
B5-2	18:00:00	Collaboration	1	office communicator, instant engagement
B6-1	18:35:00	Collaboration	-1	regs first, people second
B7-1	19:38:00	Collaboration	-1	staff meeting, group meetings for urgent matters. not regularly though
C1-1	20:50:00	Control	1	easy
C2-1	21:50:00	Control	0	
C2-2	22:50:00	Control	-1	
C3-1	23:40:00	Control	1	decentralized
C4-1	25:02:00	Control	-1	views presense as performance

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C5-1	26:50:00	Control	1	
C6-1	27:20:00	Control	0	difficult in open bay, but sees some benefits
C6-2	28:20:00	Control	-1	more critical more oversight

F8				
Assertion ID	Timestamp	Category	Score	Notes
A6-1	2:10:00	Change	-1	state not yet achieved
A2-1	2:21:00	Change	1	doesnt like change because of impacts to face to face interaction
A2-2	3:20:00	Change	1	dislike change because of impacts to collaboration
A2-3	3:50:00	Change	1	aware of reason for change
A5-1	6:30:00	Change	-1	need for own desk
A5-2	7:25:00	Change	1	doesnt need personal space
	7:50:00	Collaboration	1	face to face interaction
A7-1	8:15:00	Change	1	open space is adequate
A7-2	8:40:00	Change	-1	needs conference room
B1-1	9:30:00	Collaboration	1	
B1-2	9:50:00	Collaboration	-1	70% individual
B2-1	10:16:00	Collaboration	-1	
B2-2	10:25:00	Collaboration	1	teamwork is very important
B4-1	12:10:00	Change	-1	hard to change
B5-1	12:28:00	Collaboration	1	talk to people, verbal
B6-1	13:30:00	Collaboration	1	reach out to others first
B7-1	14:30:00	Collaboration	-1	staff meetings, one way
C1-1	15:39:00	Control	1	very easy
C3-1	16:25:00	Control	1	decentralized
C4-1	16:40:00	Control	1	work ethic
C4-2	17:11:00	Control	-1	more supervisor influence
C5-1	17:37:00	Control	1	
C6-1	18:00:00	Control	-1	downside in not seeing all your people
C2-1	15:12:00	Control	1	
C2-2	15:34:00	Control	-1	work hours and lunch hours controlled

Appendix F. Post Interview Questionnaire

The following appendix is the post interview questionnaire that was meant to act as a reliability

check for the interview results.

1. **Your Directorate** *
   Mark only one oval.

   ( ) P&I

   ( ) Finance

Part A

The members of my work group are responsible for determining the methods, procedures, and schedules with which the work gets done. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	( )	( )	( )	( )	( )	Strongly Agree

Most work-related decisions are made by the members of my work group rather than by my manager. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	( )	( )	( )	( )	( )	Strongly Agree

A great deal of information about the business is shared with employees. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	( )	( )	( )	( )	( )	Strongly Agree

Most people would say that they know what information is being used to make decisions. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	( )	( )	( )	( )	( )	Strongly Agree

Supervisors and technical experts share information openly. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Part B

Performance evaluations for group members are influenced by how well the entire group performs. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Members of my work group cannot accomplish their tasks without input from other members of the group. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

Members of my group are very willing to share information with other members of the group. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

I would describe my work group as a group of members all working together as a team. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	⬭	⬭	⬭	⬭	⬭	Strongly Agree

99

Part C

New ideas are constantly sought and tried in my work group. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Most people here welcome change and view it as healthy and non-threatening. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

People who make innovations are frequently recognized for their efforts. *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

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Vita

     Capt Richard T. Ellis graduated from Rampart High School in Colorado Springs, CO. He entered undergraduate studies at the United States Air Force Academy in Colorado Springs, CO, where he graduated with a Bachelor of Science degree in Civil Engineering and was commissioned as an Air Force officer in May 2006. His first assignment was as the Readiness and Emergency Management Flight Commander, 28th Civil Engineer Squadron, Ellsworth AFB, South Dakota. From May to September 2008, he deployed as a program manager with the Army's Task Force Phoenix unit at Camp Phoenix, Kabul, Afghanistan. Upon returning to Ellsworth AFB, he became Construction Management, OIC. In June of 2009, he was reassigned as the Operations Support Element, OIC for the 8th Civil Engineer Squadron, Kunsan AB, Republic of Korea. In June of 2010 he was reassigned as the Programs Flight Deputy in the 354th Civil Engineer Squadron, Eielson AFB, Alaska. From February to August 2011 he deployed as the Operations Flight Commander for the 332nd Civil Engineer Squadron, Joint Base Balad, Iraq. Upon returning to Eielson AFB, he was assigned as the Asset Management Flight Commander. In August of 2012, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology, where he earned a Master's of Science in Engineering Management with a focus in Asset Management.

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14. ABSTRACT

Facing fiscal constraints, organizations should investigate new ways to ensure their weapons, equipment, facilities and personnel operate with improved efficiency. The adoption of hybrid workspaces offers a unique solution to improve both space utilization and workplace efficiency. The premise behind hybrid workspaces is that workspaces are not assigned to individuals; instead, a variety of different work areas are constructed to allow individuals to choose where they accomplish their work-related tasks. However, hybrid workspaces are still an emerging concept and represent a radical departure from traditional workplace setups. Current use of hybrid workspaces falls primarily in the private sector and there is no research available to suggest if hybrid workspaces may or may not benefit the Air Force. This research investigated the Air Force's culture to determine if it may be feasible for the service to adopt hybrid workspaces. This research developed a method that was used to analyze an Air Force organization's culture to determine if the organization may be compatible with hybrid workspaces. The results show that some Air Force organizations may indeed be favorable to a move toward utilization of these types of spaces. As this research represents the first iteration of such a method, more research is required to determine feasibility. Once matured, the method can prove useful in assessing organizations to determine which areas leadership should pay attention to if they are looking to move forward and adopt hybrid workspaces.

15. SUBJECT TERMS

Hybrid workspaces, flexible workspaces, cultural compatibility, space utilization, hot desking, telework

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