



RESTRUCTURING MOBILITY MAINTENANCE ORGANIZATIONS:

IS IT TIME FOR CHANGE?

Graduate Research Paper

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RESTRUCTURING MOBILITY MAINTENANCE ORGANIZATIONS:

IS IT TIME FOR CHANGE?

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Abstract

The United States (US) has spent the last 2 decades focusing on extreme terrorists, and while the Department of Defense has gotten really good at it, it has lost some technical skills needed to fight a major theater war against a superpower such as Russia or China. The Air Force has been hindered by a large bureaucratic system, with filtered and watered-down information being transmitted to decision-makers. A major component of war is the ability to move things anywhere in the world at any time — logistics. Transportation Command and its air component, Air Mobility Command, has the primary role and responsibility to move people and equipment around the world. While becoming very effective in standard practices, resting on past laurels will be the “Achilles heel” of the command. Organizations within Air Mobility Command must adapt if it wishes to overcome – this includes restructuring how they are organized. This is never more evident than in the bureaucratic hierarchy that is the Maintenance Group. This paper will offer a practical application of an assessment to answer the question, “Are mobility maintenance organizations ready for structural change?”

To my wife and children, thank you for your love, support and patience throughout this academic year. I could not have survived this year without you.

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Eric S. Peele

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I. INTRODUCTION

The world, to quote George Schultz, is awash and change, defined by increasing global volatility and uncertainty with Great Power competition between nations becoming a reality once again. That we will continue to prosecute campaign against terrorists that we are engaged in today, but Great Power competition, not terrorism, is now the primary focus of U.S. national security.

*James N Mattis
Secretary of Defense*

The 2018 National Defense Strategy brought back the reality of a major powers' competition (Mattis, 2018). The focus...Russia and China. The United States has spent the last 2 decades focusing on extreme terrorists, and while we have gotten really good at it, we have lost some technical skills needed to fight a major theater war against a superpower such as Russia or China. A major component of war is the ability to move things anywhere in the world at any time — logistics. Transportation Command and its air component, Air Mobility Command (AMC), has the primary role and responsibility to move people and equipment around the world (Air Mobility Command, 2019). While AMC has become very effective at doing this, we lack efficiency in several areas. Blank (2015) rightly pointed out that the Air Force has struggled for years to shape itself with modern organizational theory, only managing to disconnect from members and stifle innovation. Blank (2015) goes on to quote Brimley and Scharre (2014: 1), “Today’s U.S. military is the product of history...American forces are hampered by overlapping roles and missions, and arcane organizational structures...”

General Issue

The Air Force has been hindered by a large bureaucratic system, with filtered and watered-down information being transmitted to the decision-makers. This is never more evident than in the bureaucratic hierarchy that is the Maintenance Group. The structure of the mobility

maintenance group requires taskings to flow from the execution arm of AMC, the 618th Air Operations Center (AOC) at Scott Air Force Base, Illinois. The AOC plans, schedules, and directs all mobility aircraft operations worldwide (Air Mobility Command, 2017). The AOC passes the taskings on to the wing who then filters the tasking to its operations and maintenance group. This information is received by the scheduling office within the maintenance operations flight, assigned to the maintenance group commander. The scheduling office builds a schedule based on its purview of available aircraft in coordination with the aircraft maintenance squadron. The squadron maintenance operations officer synchronizes the aircraft maintenance unit and ensures the production supervisor devises a plan to balance necessary maintenance actions in order to meet the required taskings. The flight line production supervisor has the responsibility to make production decisions on a daily basis. However, decisions are continuously scrutinized by no less than four levels of “supervision” on a daily basis; it is easy to see how inefficiencies in process and decision-making abound. One could conclude this is due, in part, to the organizational structure of mobility maintenance units.

Problem Statement

Following the release of the 2018 National Defense Strategy, Secretary of Defense, James Mattis, set out a goal of 80 percent mission capable rate for specific aircraft (Mahta, 2018). This rate was predominantly set for fighter aircraft; however, mobility platforms should take note. To achieve such high expectations, some fighter wings have considered restructuring their organization to provide more decentralized execution (i.e., provide squadron commanders more autonomy). Since that time, other organizations have tried to do the same... except Air Mobility Command. AMC has relied on the same architectural design for its maintenance organization's going back to 1948 with Maintenance and Supply Groups (Wallwork, 2019).

AMC has failed to realize the need for change, and in so doing, has suffered from a perceived culture of leaders who lack vision and motivation to meet the increasing demands of mission readiness. Hax and Majluf (1981) describes three forms of organizational structure: functional, divisional, and matrix. Given the demands of AMC's mission and the need for the highest levels of readiness, what should a mobility maintenance organization look like and when is the right time for change?

Research Focus

The focus of this research will be to provide a qualitative approach to examining the organizational structure of an AMC unit and offer a step-by-step approach to determine if organizational change should be explored and implemented. A preliminary assessment was conducted on one AMC unit and will be used as a framework for analysis with recommendations for future research.

Research for this study will compare and contrast optimal organizational structures as suggested in literature and offer suitable options displayed by similar organizations.

Research Question

The research question proposed for this literature: Are mobility maintenance organizations ready for structural change?

Investigative Questions

If AMC is to meet current and future mission requirements of the National Defense Strategy and win the high-end fight in a great power competition, it must find a way to optimize its organizational structure. Five investigative questions are used to guide this research.

- 1) Should mobility maintenance organizations redesign to become more efficient?

- 2) Should mobility maintenance organizations only seek to refine current products and processes?
- 3) Should mobility maintenance organizations redesign to operate in a functional configuration for optimal readiness?
- 4) Should mobility maintenance organizations strive to be highly collaborative in a low repetitive environment?
- 5) Should mobility maintenance organizations redesign to streamline information flow from the point of origin to the decision-maker?

Methodology

Haroun and Duffuaa (2009) insists there is no universally accepted methodology for designing the optimal maintenance organization with clearly defined command and control. Nonetheless, organizational design theory will provide the best methodology for determining the optimal structure. At the time of this writing, no formal discussions about organizational design or restructuring has occurred with an AMC organization.

Assumptions and Limitations

It must be assumed that all mission generation units within AMC are operating in accordance with Air Force Instruction 36-2101 and not conducting ad hoc experimentation with their organizational structures as well as following standard command and control operations within the established command structure. It is also assumed that organizations have defined their unit's level of readiness and understand that changing the organizational structure does not guarantee success. Likewise, organizations with similarly defined levels of readiness and organizational structure does not suggest equivalent success...or failure. Each organization must

assess its own readiness for change prior to making significant adjustments to its organizational design.

Limitations of the study reside in there being no literature documenting an AMC organizational restructure, therefore there is no usable data for analysis. Also, due to current world events, the collection of data in this study is limited to nine participants. Research on organizational behavior is vast; it has been narrowed to maintenance organization applicability and organizations with similar mission sets. Limitations in scholarly research was restricted to the use of the internet search engine, Google Scholar and EBSCOhost, as the primary sources of information. When performing an organizational redesign, the entire organization needs to be examined, to include leadership and climate. Due to the extensive nature of analyzing such areas, this work will only reference these areas as a need for additional study and analysis.

Implications

Implications of this research include potential changes to many Air Force organizations, to include AMC. Centralizing mission control for global optimization and decentralizing execution of rapid global mobility will increase mission readiness throughout the command. Making even subtle changes to the way the organization is structured can have monumental impacts to mission readiness. Second and third order of effects cannot be determined from this analysis, creating a demand for further research on the subject.

II. LITERATURE REVIEW

Chapter Overview

Careful consideration must be taken when designing an organization or undergoing an organizational restructure. Literature does not lack for examples of potential models and assessments to be done prior to organizational change. Pellettiere (2006) commends a few models that may assist with organizational design. The Malcolm Baldrige National Quality Award (MBNQA) was a model in the 1980s that focused more on strategic and organizational factors rather than the whole system of the organization (Pellettiere, 2006). In contrast, the Burke-Litwin Model of Organizational Change discusses the transactional and transformational nature to assess an organization; this includes the transactional change of structure, management practices, and systems (Pellettiere, 2006). Burton et al.'s (2015) multi-dimensional design model is, however, best applicable for this research. An amalgamation of literature discussing readiness to organizational change is presented in this chapter. Following the literature on readiness to change is a review of different organizational structures that offer the best capabilities with respect to efficiency and effectiveness.

Readiness to Organizational Change

The environment for change has to be just right in order to be successful. Literature has suggested that up to 70 percent of major change initiatives fail due to a lack of understanding and diagnosing the necessary elements for change (Cartwright and Schoendberg, 2006; Washington and Hacker, 2005; Pellettiere, 2006; Vakola, 2013). Before an organization undergoes such a monumental task of restructuring, it must first assess its readiness for change. This can be done through several diagnostic models and internal assessments that are presented throughout this literature review.

Vakola (2013) outlines a conceptual approach to multilevel readiness in organizational change. He highlights three areas that must be evaluated for organizational change: individual, perceived organizational readiness, and actual organizational readiness. At the micro level is individual readiness, which is the confidence in one's abilities (i.e., self-efficacy). Vakola (2013) also looks at the organizations readiness to change; its willingness or motivation to change determines its readiness. It is at this level where the organization is perceived to be ready to change. Literature, to include this paper, does not distinguish between individual and organizational readiness to change (Vakola, 2013). This is due, in part, to the level at which the change will least likely affect the individual members' daily operations. The organizations ability to manage the change is of little use if it cannot implement the change it seeks, which happens at the macro level. As with any change in an organization, buy-in from its members is crucial. Vakola (2013) agrees that individuals are likely to resist organizational change due to a lack of buy-in when not supported by group norms and expectations. Vakola (2013) rightly concludes that multi-level readiness to organizational change is necessary to complete a holistic strategy in developing a new structure.

Organization self-assessment can help identify one of the main causes for failure and successful organizational change (Pelletiere, 2006). He, too, highlights the cause as being a lack of thorough diagnostic investigation in the organization's readiness level for planned change. In his multi-dimensional approach, he assesses the strength of an organization's climate and culture through detailed analysis. This qualitative and quantitative approach helps determine the organization's readiness to change. The purpose for organizational change can stem from global competition, advances in technology, or a desire for improved organizational effectiveness and efficiencies. What is being discussed here is more than continuous process improvement or total

quality management techniques, it's an in-depth analysis by management to assess the risk of implementing plan changes based on the best fit for the organization and commitment by its members. It has been proven through several studies that the reason for failure in organizational change is due to neglecting thorough analysis of internal organizational culture and climate (Pelletiere, 2006). Pelletiere (2006) cites Harrison and Shirom (1999) which identifies the high rate of failure to change as being a failure to conduct a thorough diagnostic investigation of the organization's problems.

The success of Air Mobility Command's maintenance organizations are contingent on its willingness and ability to change. Khademian (2010) reflects on society's innate desire to organize—whether in small settings, such as an elementary playground, or in large organizational structures, organizing is fundamental to accomplishing that which could not otherwise be achieved individually or randomly. Flexibility is the desired end-state of purposeful organization. Whether it's the convergence of 22 separate agencies into one department to create the U.S. Department of Homeland Security or the events that took place with the shuttles *Challenger* and *Columbia* that created a need for more hierarchical structure for NASA, the clear message from literature is that more flexibility, decentralization, and a network approach to organizing is needed to solve the most challenging organizational problems (Khademian, 2010). The success of reorganizing will depend on an organization's capacity for coordination (Kettl, 2003), collaboration (O'Leary and Bingham, 2009; Weber and Khademian, 2008), resource sharing, and inclusive organizational practices (Feldman et al., 2009; Khademian, 2010). Khademian (2010) highlights the need for hierarchy because of the lack of an organization's ability to reach a common purpose; that which is supposed to provide clarity (i.e., hierarchy),

does just the opposite. Adding flexibility to organizing allows for a common purpose to be shared and appropriate accountability to be exercised (Khademian, 2010).

According to Liebling (1981), organizations are continually trying to determine whether or not to centralize or decentralize their organization. While some companies have elected to consolidate power at the corporate level, others believe in shifting the degree of responsibility down to middle managers with the goal of revitalization for the organization. Some organizational leaders falsely follow the latest industry standard in organizational structure, rather than do their own analysis and implement the best structure that meets their organization's strategy. Determining whether an organization is ready for a change is largely based on the culture and dominant philosophy within the organization; attitudes toward control of power will play a major role on the decided structure (Liebling, 1981). Ultimately, the motivation of the members in the unit, Liebling (1981) concludes, will determine the success of the change—Leadership will need to document the goals and benefits they expect to occur, even if only qualitative statements can be made.

Burton et al. (2015) has one of the most comprehensive and holistic approaches to organizational design that this researcher has come across in literature. He not only provides a methodology for redesign, but he also provides assessments to determine the current state of the organization. Burton (2015: 5) does not mince words when he says the implementation of a complete organizational redesign will involve much work and time in “redesigning the company structure, incentive system, decision processes, and climate.” According to research on the relationship between organizational design and efficiency, approximately 30 percent of the variation in performance can be explained by organizational design (Burton et al., 2015). Burton et al. (2015) explains that changes in design components help enhance internal components of

the organization (i.e., work processes). In some cases, a new design can optimize the use of resources and better control cost (Burton et al., 2015). The multi-contingency design diamond model presented by Burton provides five components that must be addressed in a redesign. He then outlines a step-by-step approach for diagnosing, designing and implementing an organization design change for those organizations who are ready for change.

Types of Structural Design

Organizations, generally, fit into one of two organizational structures: centralized or decentralized (Liebling, 1981; Fan et al., 2003; Deo and Gurvich, 2011; Yang and Zhang, 2019). There is, however, a third structure that has become more prevalent among fast-moving, agile organizations...a hybrid approach to organization design (Miles et al., 2009; Haroun and Dudduaa, 2009). Determining whether to centralize or decentralize largely depends on the strategy of the organization. Liebling (1981) provides a useful flowchart to answer the question of whether to centralize or decentralize (see Figure 1). “The centralization- decentralization distinction especially applies to operational kinds of decisions” (Burton et al., 2015: 191).

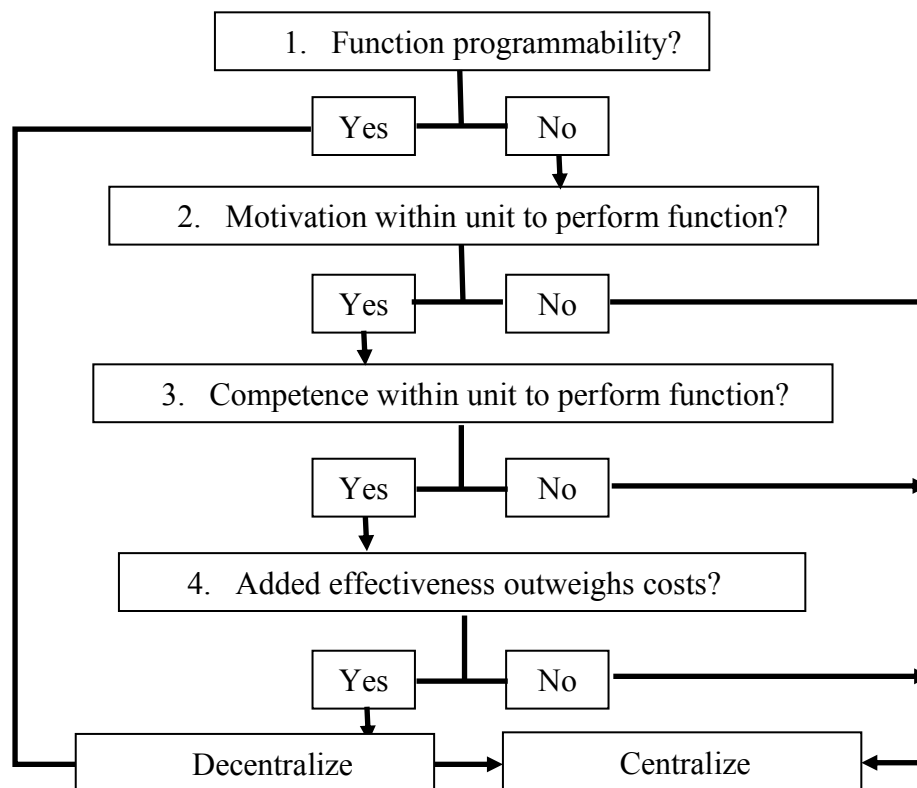


FIGURE 1: THE DECISION TO DECENTRALIZE A FUNCTION (SOURCE: LIEBLING, 1981)

Centralization is the degree to which coordination and control are managed, usually corporate headquarters (Burton and Obel, 2004; Burton et al., 2015). A senior consultant with

Marshall Institute Inc. and prior Air Force maintainer, explains that a centralized organization places the maintenance department outside of production, where all needs are met (Ross, 2019). Burton et al. (2015) argues “Decentralization is the degree to which decision-making authority and responsibility for coordination and control lies in the subunits of the firm and individual managers, rather than corporate headquarters or one specific level of the hierarchy.”

When designing in a decision-making organization, Christensen and Knudsen (2010) point out that these organizations try to minimize possible errors, specifically Type I and Type II errors. Type I errors occur when the decision-maker rejects a superior alternative, whereas in a Type II error the decision-maker is accepting an inferior alternative (Christensen and Knudsen, 2010). In a hierarchical organization, the decisions are run through multiple levels of command before reaching the decision-maker, thereby reducing the number of Type II errors. Hierarchical organizations, generally, imply centralization, and introduces macro level design considerations. These structures maintain the strictest decision-making authority – projects are filtered as they move up the hierarchical chain. Decisions to decentralize with a flat organizational structure (referred to as a polyarchy) pushes approval of projects down to the most appropriate level, reducing the chances of a Type I error (Christensen and Knudsen, 2010). Flat structures, in this case, allow for less filtering of projects. The design decision an organization makes to structure as either a hierarchy or polyarchy means that most information gets filtered on the way to the top or it passes through unfiltered, to include low-quality projects (Christensen and Knudsen, 2010). Fan et al. (2003) introduces the Management Information System (MIS) as another approach to manage decisions in addition to an organization redesign solution (Brynjolfsson and Mendelson, 1993). Fan et al. (2003) highlights the limitations of centralization in an ever-increasing uncertainty in the marketplace. Decisions must be made rapidly, and with limited real-time

information processing ability at the top of the hierarchy, decentralized structuring would improve performance and encourage innovation (King, 1983; Fan et al., 2003). With the growing Information Technology (IT) structure, many of today's organizational decisions can be pushed down to lower levels to meet many of the challenges it faces (Daft, 2007). Conversely, some data obtained by IT systems may need expert analysis which cannot be determined in a decentralized environment (Fan et al., 2003). Management philosophy and corporate culture play a critical role in whether IT is used to decentralize information and authority (Daft, 2007).

Based on this researcher's experience with the Defense Readiness Reporting Systems (DRRS), some managers are incentivized to misrepresent their organizational capabilities (i.e., showing better readiness than actual so as not to "look bad" to higher management). Ba et al. (2001) identifies the challenge to discover the right incentives that would promote truthful information is known as the *incentive alignment* problem. Based on this information, to take a myopic view of the decision-making process would mean catastrophic failure for the overall organizational design structure (Fan et al., 2003). Goal congruence, as defined by Fan et al. (2003), would align the objectives of different organizations and members to pursue a common goal.

More closely connected to the maintenance structure of the Air Force is the United States Navy's Carrier Strike Group (CSG). Albright et al. (2014) breaks down the Navy's CSG's highly autonomous, decentralized organizational structure. Equivalent to a Numbered Air Force (NAF) Commander, the CSG Commander oversees the operations of several units: the Aircraft Carrier, the Air Wing, the Destroyer Squadron, and the Cruiser. For the purpose of this research and to perform a reasonable comparison, the Air Wing more closely represents the structure of an Air Force Mobility Wing. The Navy's Air Wing consists of eight or nine squadrons (of which four

are strike fighter squadrons) with each squadron commanding officer delivering operational capability and readiness to the Air Wing Commander and on to the CSG Commander (Albright et al., 2014). The focus, across the board, is the Air Wing's readiness, even to the detriment of a single squadron; mission success is the top priority of the Air Wing and CSG Commander (Albright et al., 2014).

Organizational design theory also allows for a hybrid approach. Hybrid structures offer a blend of centralization and decentralization in an effort to increase efficiencies and effectiveness. One type of hybrid is called a cascade system; it organizes according to capacity for each area and only looks to centralize as necessary (Haroun and Duffuaa, 2009). Miles et al. (2009) have coined the term *I-form* organization, which is short for Innovation-form. Born out of a desire for rapid and continuous innovation, the I-form allows organizations to effectively compete in complex and challenging environments (Miles et al., 2009). They go on to explain that an organization that has a single business strategy and performs functions such as forecasting, planning, budgeting, and system control, is best suited with a unitary-form, or U-form. The unitary form can be best defined as hierarchical and a centrally planned and managed organization (Miles et al., 2009). The new I-form focuses, as Miles points out through his economic and organizational evolution, on market exploration through knowledge and collaboration (Miles et al., 2000; Miles et al., 2009). They hold that an I-form solution would be best suited where technical and market knowledge grow rapidly and where collaboration, experience and competent innovation are highly desired.

Haroun (2009) explains four advantages of centralization: flexibility and improved resource utilization, more efficient line supervision, more effective training, and mass purchasing of modern equipment. Many large corporate organizations use a centralized structure in order to

retain control at the leadership levels. Amazon and Tesla are such companies. Amazon has a functional organizational structure enabling managerial control of its global e-commerce operations (Meyer, 2019). Tesla Inc. also employs the functional or unitary-form organizational structure to maintain strong managerial control of the business despite growing international operations (Meyer, 2018). The corporation's structural design help manage the myriad of challenges it faces (Meyer, 2018). Meyer (2018) explains how the centralized nature of Tesla's corporate structure ensures managerial control through decisions that a central group or team produces. The disadvantage to its current structure is its limited ability to adjust to issues in real time, thereby decreasing its ability to be competitive in overseas markets (Meyer, 2018).

The aviation community has also found efficiencies by centralizing some of its functions: maintenance scheduling and analysis. Companies such as UPS, Atlas Air, and Delta Tech Ops have all centralized their maintenance scheduling and analysis of their fleet. This provides better fleet awareness and management of reliability. Through a series of process modifications to include centralized maintenance scheduling, and diligent use of resources, Delta improved many of its maintenance key performance indicators (e.g. Maintenance cancellations went from 5,647 in 2010 down to 55 in 2018) (Klein, 2019). By applying the theory of constraints model to their processes, Delta determined that comprehensive buy-in and the centralization of certain authorities would be better aligned at the top; in terms of the Air Force, this would mean centralizing fleet impacting functions at the Major Command level. Delta Tech Ops also operates under a decentralized model within its operational areas, allowing for innovation to flourish (Klein, 2019). The decentralized nature also encourages individual education and effective process collaboration.

Literature has also discussed organizations as living organisms. In an effort to achieve maximum organizational agility, organizations need to be able to mobilize quickly, be nimble, be empowered to act, and make it easy to act (Aghina et al., 2018). Figure 2 shows a comparison of organizations as machines to ones as organisms (Aghina et al., 2018). Research has shown that long-term performance success is the best indicator of organizational health; they have a 70 percent chance of being in the top quartile (Bazigos et al., 2015; Aghina et al., 2018). The five trademarks of an agile organization consist of:

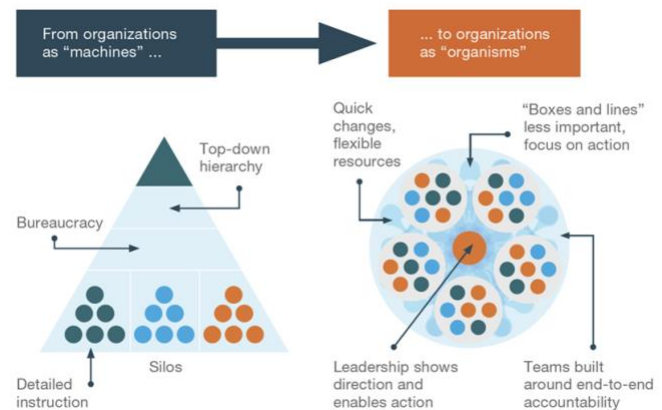


FIGURE 2: ORGANIZATIONS AS ORGANISMS (SOURCE: AGHINA ET AL., 2018)

strategy, structure, process, people, and technology. McKenzie and Company have identified organizational-agility practices for each trademark (Aghina et al., 2018). Strategy represents a “north star” approach that is embodied across the organization. The structure is a network of empowered teams with clear accountable roles (Aghina et al., 2018). Processes are set up in rapid decision and learning cycles with a standardized way of working, performance orienting, transparent information, and action-oriented decision-making (Aghina et al., 2018). People in an agile organization have a dynamic mobility role, using next generation technology and evolving the architecture, systems, and tools for development and delivery practices (Aghina et al., 2018).

Daft (2007) presents two organizational design approaches adapted from Hurst (1995), one vertical and one horizontal in Figure 3. The vertical structure represents a mechanical system design whereas the horizontal structure depicts a natural system design.

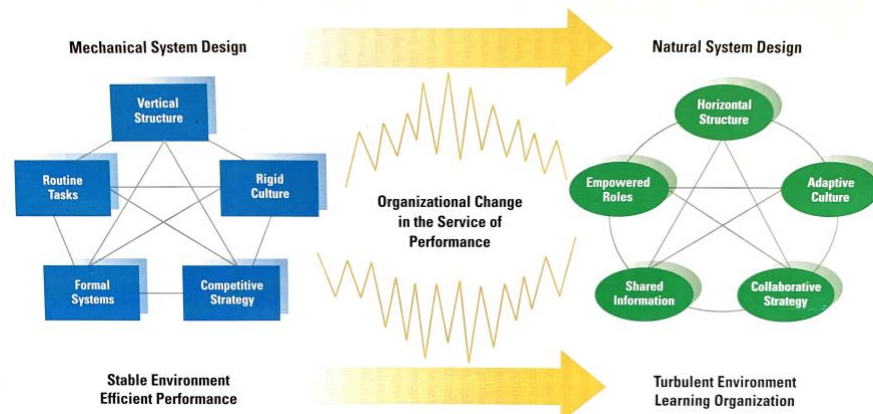


FIGURE 3: ORGANIZATIONAL DESIGN APPROACHES (SOURCE: DAFT, 2007)

Organizational Readiness

Goldfein insists that restored readiness of the force has to be a top priority and the National Defense Strategy has made building a more ready force job one (SECAF Public Affairs, 2018). Ensuring the organization's personnel and equipment are operationally ready is a key performance indicator for each mobility unit. In a recent publication on the logistics strategic framework, HAF (2018) states one of the key efforts to optimize sustainment resources and maximize readiness is to reduce the barriers to achieve alignment across the enterprise, to include culture, organization, information, and authorities. While the Air Force does not operate on profits, it does operate on personnel and readiness.

Verhoeff et al. (2015) outline the primary objective of a military aviator is to optimize readiness in response to external threats and take part in peace supporting missions, whenever and wherever its nation and allies need. Therefore, readiness for a maintenance organization is its ability to ensure there are sufficient aircraft mission capable for mission success. Constraints identified by HAF (2018) working group included fragmented management of systems/fleets. The lines of effort presented by the working group will challenge culture and impact organizational structures as authorities are realigned (HAF, 2018). The unit's designed

operational capability statement identifies the requirements the organization needs to achieve to be ready. Aircraft maintenance organizations can generally be evaluated on its ability to ensure aircraft availability, service ability, and sustainability. Availability is the total duration in which aircraft are mission capable, which influences the capacity to meet its requirement. Serviceability is the number of mission capable aircraft at a specific point in time and sustainability is the total residual flight time of the entire fleet at a given time (Verhoeff et al., 2015). To achieve desired readiness levels, incremental changes are insufficient and time-consuming. Drastic measures must be taken in order to achieve such lofty goals. Completely re-organizing a mobility organization would be a step towards making expectations a reality.

III. METHODOLOGY

Chapter Overview

When redesigning an organizational structure, a methodology that best meets the organization's strategy needs to be followed. In a search of scholarly articles on organizational design models, most presented a methodology that would address many aspects of the organization redesign, but Burton's (2015) step-by-step approach to organizational design provides systematic and thematic way of developing the new structure. This chapter will summarize the necessary steps, providing emphasis on the first five. Diagnostic questions located in Appendix A will assess an organization's current state and its potential for future restructuring. Populating the associated graph will give a visual representation of the organization's current state. The compilation of these results will aid in developing the desired structure.

Step-By-Step Approach

Step 1: Initial Considerations: Setting the Goals

Step one of our methodology in organizational design involves assessing the scope and goals of the organization as detailed by Burton et al. (2015). He explains that redesigning an organization involves more than paper changes, it will take much time. It involves redesigning the company structure, the incentive system, decision processes, and the climate, just to name a few (Burton et al., 2015). Hewlett Packard struggled for many years before undergoing a complete redesign (Burton et al., 2015). The largest redesigns in education occurred at Aarhus University in Denmark, consisting of the merger of the old university and six small research and teaching universities and national research institutions (Burton et al., 2015). It was determined through the design process that the organizational structure would change from a divisional

configuration to a matrix (Burton et al., 2015). Further, the administrative structure was changed to one central administration with local service centers. Additionally, Burton et al. (2015) annotates, approximately half of the 9000 employees had to move offices while others got new jobs altogether.

Organizational design is not just reorganizing the organizational chart; it should be chosen based on the context for which is expected to operate and include both structural and

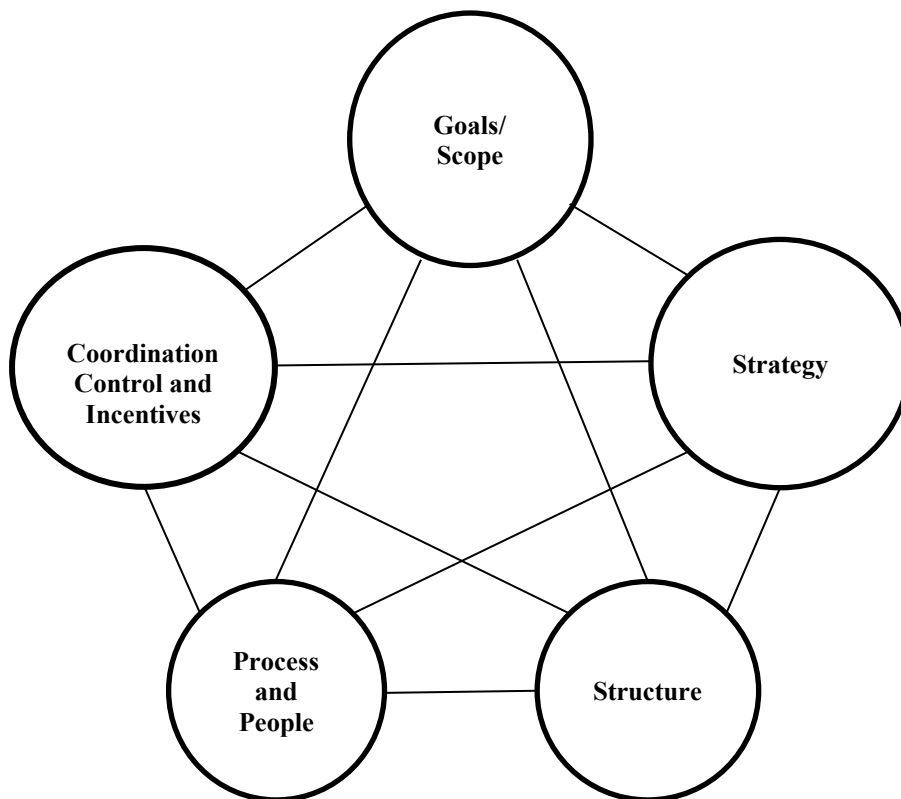


FIGURE 4: MULTI-CONTINGENCY DESIGN MODEL (SOURCE: BURTON ET AL., 2015)

human components (Burton et al., 2015). For the mobility organization, Burton's multi-contingency model depicted in Figure 4 may prove most useful. The interconnected nature of the model ensures the best design to address organizational

scope and goals.

To determine the goal space of mobility maintenance organizations, one must determine the unit in which to analyze as well as answer the question of what the organization does and its major work activities. Answering the diagnostic questions on the organization's efficiency and effectiveness will help determine the organization's current state and assist in making plans for

its future state (Table 2, Appendix A). After reading the questions in the table, on a scale of 1 to 5, the average score is then plotted on Figure 5. Based on the results, each organization should evaluate their current and optimal level of efficiency of inputs, resources, and costs, balanced with an effective output, product or service, or leading-edge innovation (Burton et al., 2015).

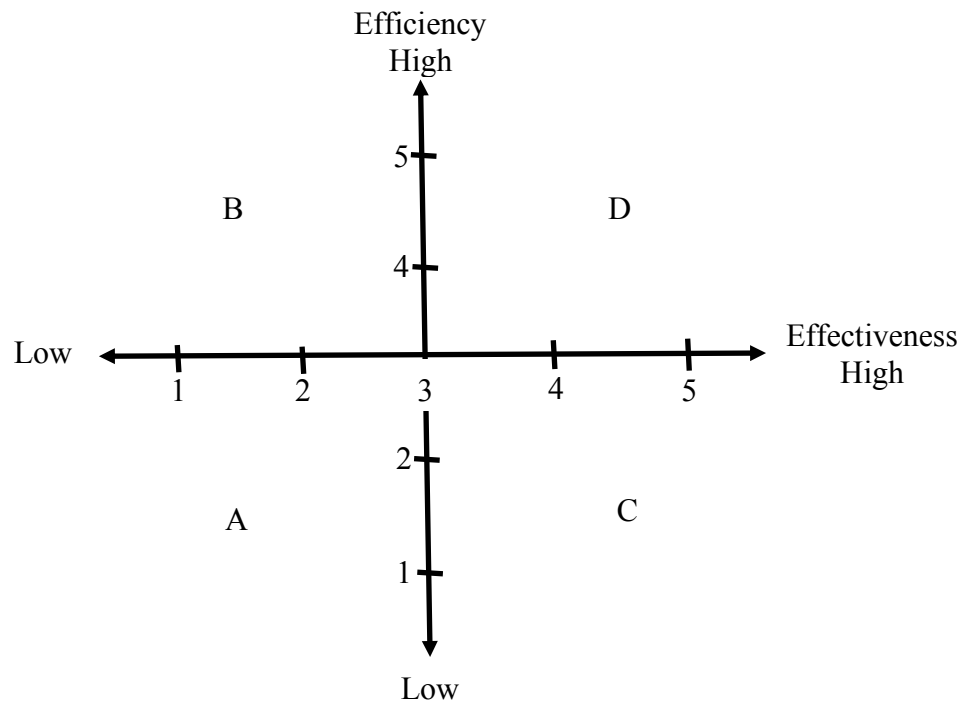


FIGURE 5: ORGANIZATION GOAL SPACE (SOURCE: BURTON ET AL., 2015)

Step 2: Determine the Strategy

Once the unit which will be analyzed is determined, categorize the organization’s strategy as either a reactor, defender, analyzer without innovation, analyzer with innovation, or prospector (Burton et al., 2015). As outline in the 2018 National Defense Strategy, “the Department of Defense will be prepared to defend the homeland, remain the preeminent military power in the world, ensure the balance of power remain in our favor, and advance an international order that is most conducive to our security and prosperity” (Mattis, 2018). Particularly important to AMC is the defense objective to “continuously deliver performance

with affordability and speed...” (Mattis, 2018). It is this researcher’s opinion that the Air Force and AMC say that they want maintenance units to perform one way, but the current structure does not allow for optimal success.

Burton et al. (2015) provides specific definitions for each of these strategies. The reactor as one who is neither an explorer nor an exploiter; there is no renovation and information processing demands are likely to be low on detail and focus. The defender is high on exploiting its resources and situation, but low on exploring anything new or being innovative outside its narrow current scope. Defenders focus on process innovation with efficiency as its primary goal (for example, most Air Force Maintenance Groups) (Burton et al., 2015). A prospector organization focuses on the innovation of new things to the detriment of being efficient and exploitive of existing opportunities and not much concerned with exploiting or developing efficiencies in its use of resources (Burton et al., 2015). The analyzer without innovation strategy is similar to the defender, but it does have a passive innovation strategy, whereas the analyzer with innovation strategy will exploit its current position of resource utilization and adopt active innovation strategies by developing new products, services, and delivery processes such as Microsoft and IBM (Burton et al., 2015).

The appropriate diagnostic questions are listed in Table 3, Appendix A. Organizations must answer each question by scoring from 1 to 5, with one representing a very low score, three representing a moderate score, and five representing a very high score. After answering each of the questions, the values of exploration and exploitation can be plotted in Figure 6 to determine the organizations strategy space.

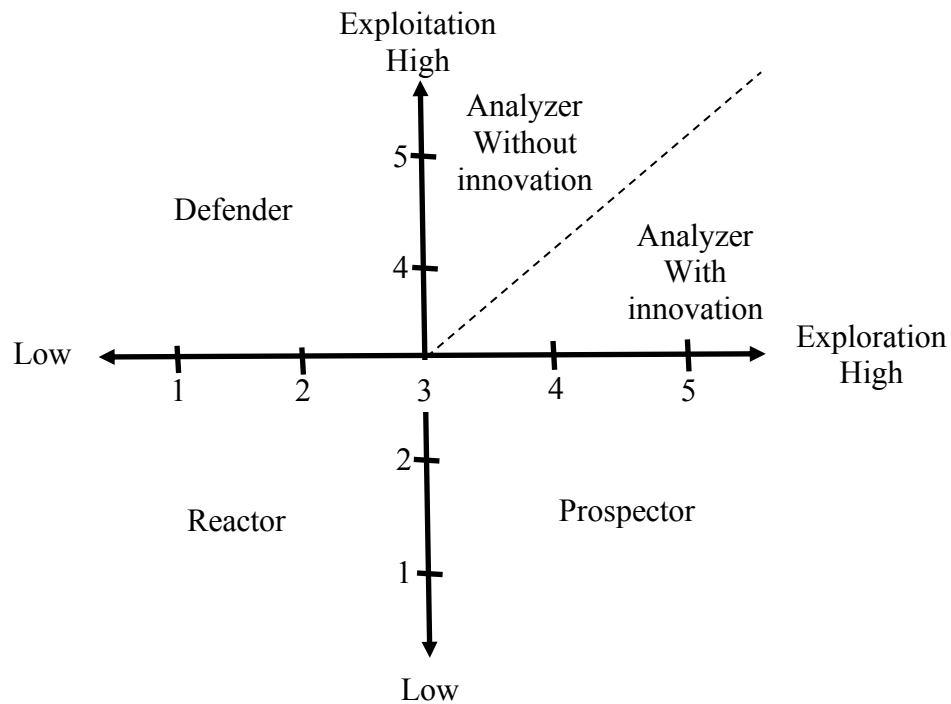


FIGURE 6: ORGANIZATION STRATEGY SPACE (SOURCE: BURTON ET AL., 2015)

Step 3: Structure Analysis

Step three is the critical juncture in this methodology. It uses the inputs from the previous two steps to aid in the design of the organization's new structure. A poor design could lead to losses in short-term efficiency and effectiveness, as well as long-term viability (Burton et al., 2015). There are four basic configurations Burton et al. (2015) illustrates an organization can be designed as: simple, functional, divisional, and matrix. It is this researcher's opinion that the Air Force can be generally categorized as either a functional or divisional configuration. From experience, at wing level and above, AMC operates in a divisional configuration. In accordance with Air Force Instruction 38-101, *Manpower and Organization*, wings are broken down into functional groups. In the functional configuration, wing commanders exercise functional control over specified sub-units: Operations Group, Maintenance Group, Mission Support Group, and Medical Group (AFI38-101, 2019). These functional units are then broken down into further

sub-units called Squadrons, the basic building block of the Air Force. Units may then be broken down further into sections, flights, or elements (AFI38-101, 2019). High focus on functional achievement can lead to poor communication across sub-units and a misalignment of the overall organizational goal (Burton et al., 2015).

Joint Base Charleston provides a potential case for organizational structure redesign. The organization is divided into two wings, the 437th Airlift Wing (AW) and the 628 Air Base Wing (ABW). The organization manager of the 437 AW (i.e., Wing Commander) is responsible for two functional components, Operations and Maintenance. Each functional unit is run by a Group Commander who oversees four and three squadrons, respectively. The 437th Maintenance Group (MXG) is comprised of the Aircraft Maintenance Squadron, the Maintenance Squadron, and the Maintenance Operations Flight. Only squadrons are commanded by boarded and appointed squadron commanders who supervise the organizing, training, and equipping of the Airmen under their charge. Day-to-day operations are handled by the maintenance operations officer and the flight line production team. There is, however, another level of input into the daily operations - the deputy maintenance group commander. He utilizes a seasoned production supervisor to oversee operations and provide “guidance” where needed. Adding that the aircraft supply function resides in a different wing on the joint base, compounds the benefits and utility of performing analysis of the structure.

The diagnostic questions in Table 4, Appendix A can help determine the current organization’s configuration space. Questions should be answered on a scale of 1 to 5, very low to very high, respectively. The average of the results can then be plotted on the graph in Figure 7.

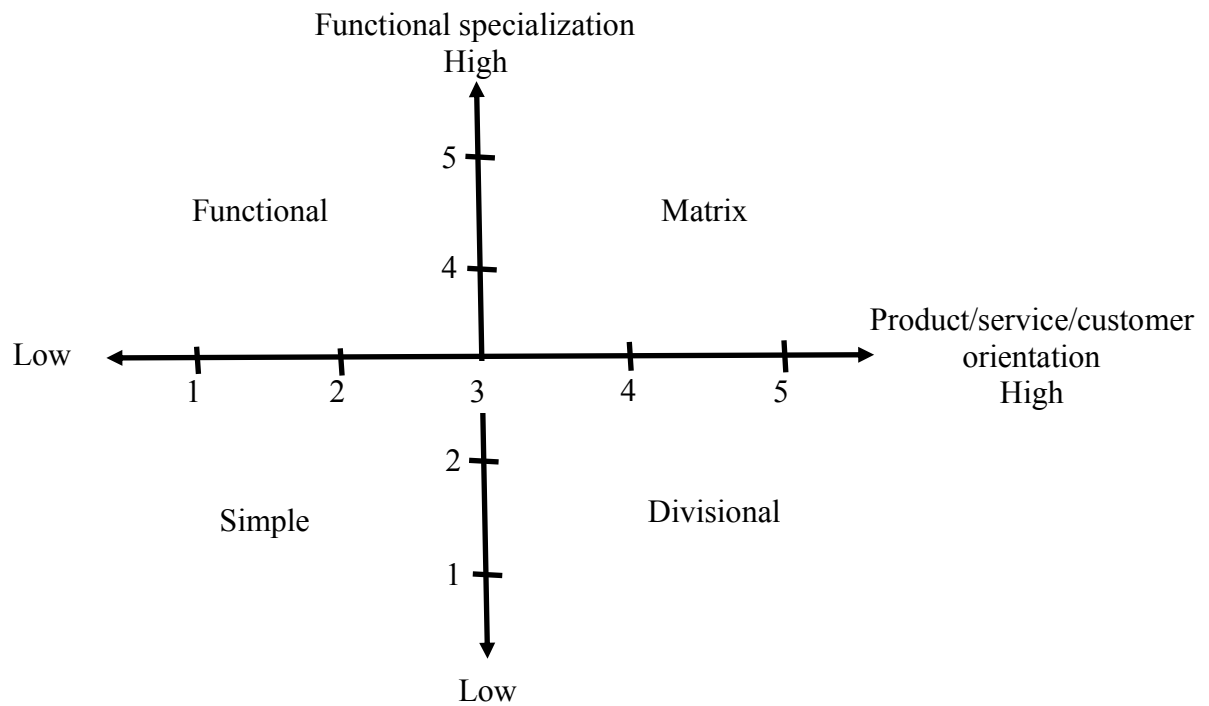


FIGURE 7: ORGANIZATION CONFIGURATION SPACE (SOURCE: BURTON ET AL., 2015)

Step 4: Evaluating the Processes and Leadership

The first step in assessing the process is task design. Task design is breaking work into smaller tasks while trying to meet organizational goals (Burton et al., 2015). Task design is divided into two dimensions: repetitiveness and divisibility. As the name implies, repetitiveness is the nature at which the task is accomplished relative to uncertainty and divisibility has an inverse relationship with the coordination of the sub-tasks. Task design is then be broken down into four basic categories: orderly, complicated, fragmented, and knotty (Burton et al., 2015). Orderly task design is highly divisible and highly repetitive, complicated task design is not very visible, but is highly repetitive, fragmented task design is highly divisible, but not very repetitive and knotty task design is neither divisible nor repetitive and is the most difficult to coordinate (Burton et al., 2015).

Analyzing the task design of an organization can be done using the diagnostic questions listed in Table 5, Appendix A. To determine the task design space, calculate the results and average the score to plot the relative divisibility and repetitiveness of the organization in Figure 8.

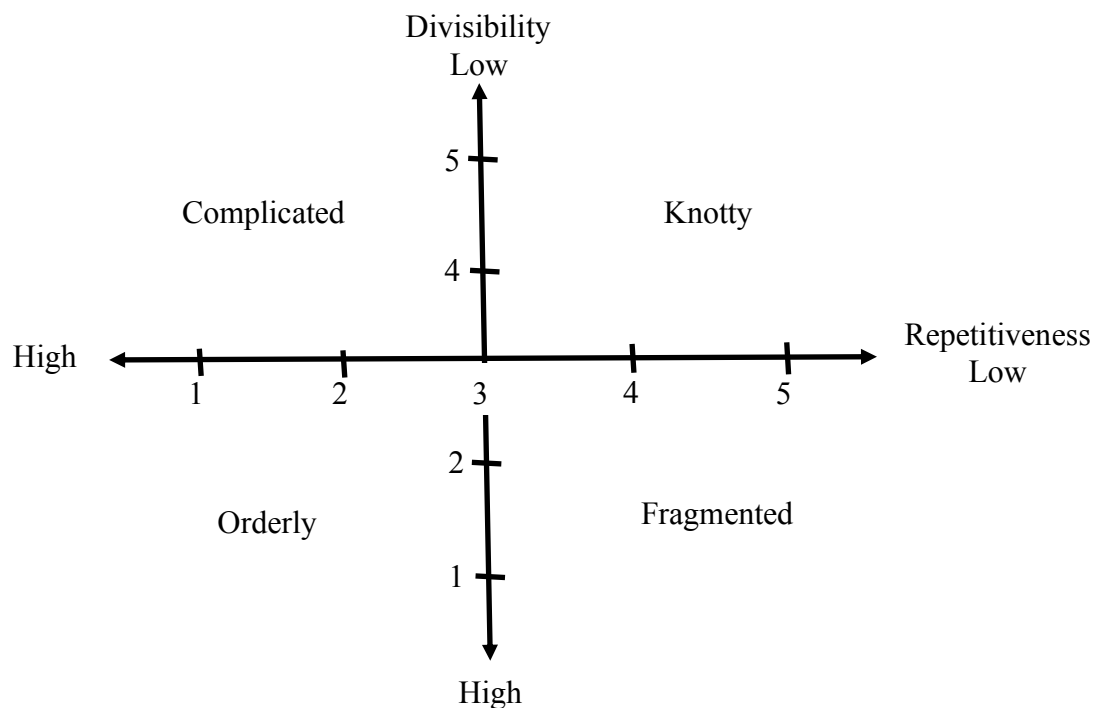


FIGURE 8: ORGANIZATION TASK DESIGN SPACE (SOURCE: BURTON ET AL., 2015)

When assessing the people, it is necessary to determine if they will be grouped by shop, factory, laboratory, and office, based on the level of skill required and professionalism needed. Due to the extensive training required and professionalism needed within the maintenance structure, it can be assumed that all members will be categorized as office for the purpose of this research. It is also necessary to evaluate the leadership styles desired for the organization in order to establish the appropriate climate. There are many tools available when discussing leadership styles as Burton et al. (2015) presents: Theory X and theory Y are widely used in management conversation (McGregor, 1969); Autocratic versus Braddock leaders as described by Likert (1967); and managers versus leaders as described by Kotter (1988). Burton et al. (2015) provides

four leadership style traits that should be evaluated for organizational leadership: maestro, manager, leader, and producer. The Air Force is very familiar with the manager and leader leadership styles, but may do well to identify people in certain positions that exhibit a maestro or producer leadership style. Analyzing the leadership qualities of maestro and producer is beyond the scope of this research.

Organizational climate follows the traits exhibited by the organization's leadership. Organizational climate is the relative enduring quality of the organization's environment that a) is experienced by its members, b) influences their behavior, and c) can be described in terms of the values of a particular set of attitudes of the organization (Tagiuri and Litwin, 1968; Burton et al., 2015). The climate of an organization is difficult to measure because it tries to capture the psychological aspect of its members, but it strives to capture all the members of the organization (Burton et al., 2015).

Step 5: Coordination, Control, and Incentives

This step involves the analysis of the organizations processes in coordination, control, and information and knowledge systems that are important to ensure a smooth flow of communication between organizational components. This research will not spend much time discussing the myriad of options to ensure the proper command and control communication linkages are established, but suffice to say it is a much needed area of exploration when redesigning the organization. The extensive amount of information that must be communicated within an organization is a critical dimension of the information systems. Information in this dimension can be classified as either tacit knowledge or explicit knowledge. In the maintenance organization both of these are necessary to ensure complete readiness. In Table 6, organizations should answer the diagnostic questions to determine their tacit nature of information versus the

amount of information needed. It can then identify which information and knowledge systems space that is critical to the everyday functioning of the organization in the information and knowledge systems space figure. Use the scores obtained from the diagnostic questions in Table 6 to identify the organization's information and knowledge systems space on the Figure 9.

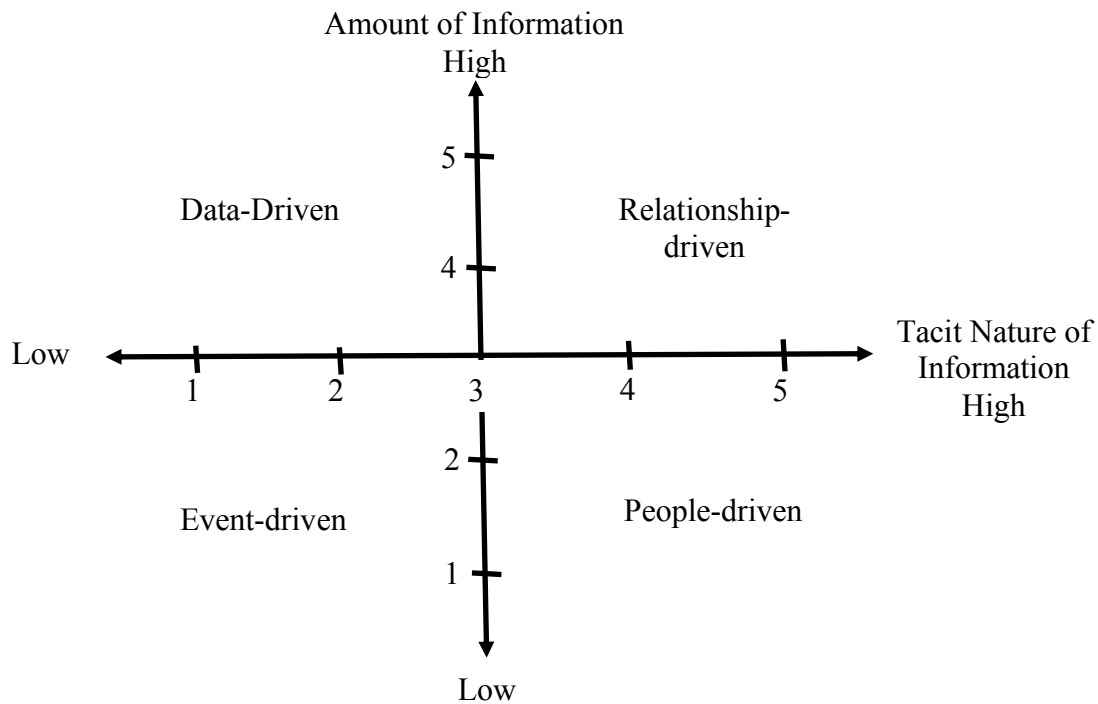


FIGURE 9: ORGANIZATION'S INFORMATION AND KNOWLEDGE SYSTEMS SPACE (SOURCE: BURTON ET AL., 2015)

The other item organizations need to address in this step revolve around incentives. Incentives are instruments designed to encourage certain actions or behavior (Burton et al., 2015). Incentives can come by way of monetary incentives, praise, acceptance, a sense of belonging, and recognition of self-worth (Burton et al., 2015). The Air Force uses incentives all the time by way of awards and special duty pay for highly desired specialties. The Air Force offers special duty assignment pay for highly specialized skills; highly technical career fields, such as aircraft maintenance, have yet to see any type of monetary incentive offered for their expertise (Losey, 2018). Personal pay and bonus pay are already incorporated into the current

organizational structure; profit sharing, such as the incentive structure offered at Delta, is not an option for the Air Force. While skill-based pay is perhaps the most widely used type of incentive system in the modern world, the Air Force has yet to employ this type of structure within its ranks (Burton et al., 2015).

Step 6: Designing the Architecture

Step six is the design aspect of the organization. When designing the new structure of the organization, it is extremely important to take a holistic approach. Research has shown that performance losses are nearly certain if a non-holistic approach is taken (i.e., if some design components are changed, but not others) (Burton and Obel, 2004; Burton et al., 2015). Using the previous diagnostic questions, one can design a structure that optimizes efficiency and effectiveness as well as increase readiness levels.

Step 7: Implementing the Architecture

Implementation can make or break a redesign. Many of the issues experienced during implementation may not be due to the architectural design, but to a poor implementation process (Burton et al., 2015). If employees do not understand or support the change, the effects can ripple throughout the organization and have multiple long-term implications. In the implementation phase of the change management project, four areas need to be addressed: who, what, when, and milestones. The "who" will be the people involved in the process who have been allocated adequate resources and clear direction; the "what" will define the activities or projects; the "when" will define the milestones and deadlines; while the milestones will keep the entire change process on track (Burton et al., 2015). Communication during each of these phases cannot be overstated; it is essential to change in implementation success. The multi-contingency model presented earlier provides a tool for communicating to all members in the organization. A

lack of communication will mean a lack of support for the project and ultimately lead to failure of the redesign project.

IV. RESULTS AND DISCUSSION

Chapter Overview

The following chapter will provide detailed analysis regarding the research question and answering the investigative questions with respect to the pilot assessment performed on the 437 AW at Joint Base Charleston, South Carolina. The participants consisted of former members of the organization at the Company Grade Officer level. The results of the assessments were collected and averaged to provide insightful markers into the relative current state of the 437 MXG. After averaging the results, they were then plotted on their associate graphs. Once all of the respondents' data were collected and averaged, each category was averaged and illustrated on the "target" design for change.

Results and Discussion

Table 1 shows the responses from nine participants: seven Company Grade Officers (CGO) from the 437 MXG, one CGO from the Operations Group, and one Chief Master Sergeant with a wing-level perspective at Joint Base Charleston, South Carolina between the years 2014 and 2019.

TABLE 1: ORGANIZATIONAL DESIGN ASSESSMENT RESULTS

Pilot Organizational Design Assessment										
Category	1	2	3	4	5	6	7	8	9	Avg
Efficiency	3.50	3.50	3.75	3.00	2.00	3.50	4.00	4.50	3.50	3.47
Effectiveness	4.50	3.70	5.00	3.00	4.50	4.50	4.75	4.00	3.75	4.19
Exploration	3.25	3.50	2.00	2.50	2.00	2.75	2.25	2.50	3.75	2.72
Exploitation	3.40	3.20	2.40	3.00	3.00	3.40	4.00	4.00	3.60	3.30
Product/Service/Customer Orientation	3.67	3.00	3.33	4.33	4.33	3.33	4.00	4.00	4.00	3.75
Functional Specialization	4.00	4.30	4.67	3.00	4.67	5.00	5.00	4.33	3.67	4.37
Repetitiveness	4.67	4.00	3.67	4.00	5.00	4.00	3.67	3.67	2.67	4.09
Divisibility	1.33	4.00	2.00	2.83	2.33	1.67	2.00	2.67	3.00	2.35
Tacit Information	1.75	2.00	4.25	3.00	3.50	1.50	3.50	3.25	4.25	2.84
Amount of Information	3.67	4.00	3.67	4.00	4.67	3.67	4.67	2.67	4.00	3.88

Each respondent answered the assessment questions on a scale of one to five listed in the tables in Appendix A. Each participant was asked to answer according to their own experience and perception of the strategic direction given by Group and Wing-level leadership. Their average score for each category (i.e., efficiency, effectiveness, etc.) was then input into Table 1 for general analysis. Due to the small sample size and narrowed scope of population, further assessments would need to be conducted, including a sample pool of participants from the enlisted community in various leadership positions.

Investigative Question 1: Should mobility maintenance organizations redesign to become more efficient?

Mobility maintenance organizations strive to be effective, but not always efficient. Figure 10 shows the results of the questions on efficiency versus effectiveness.

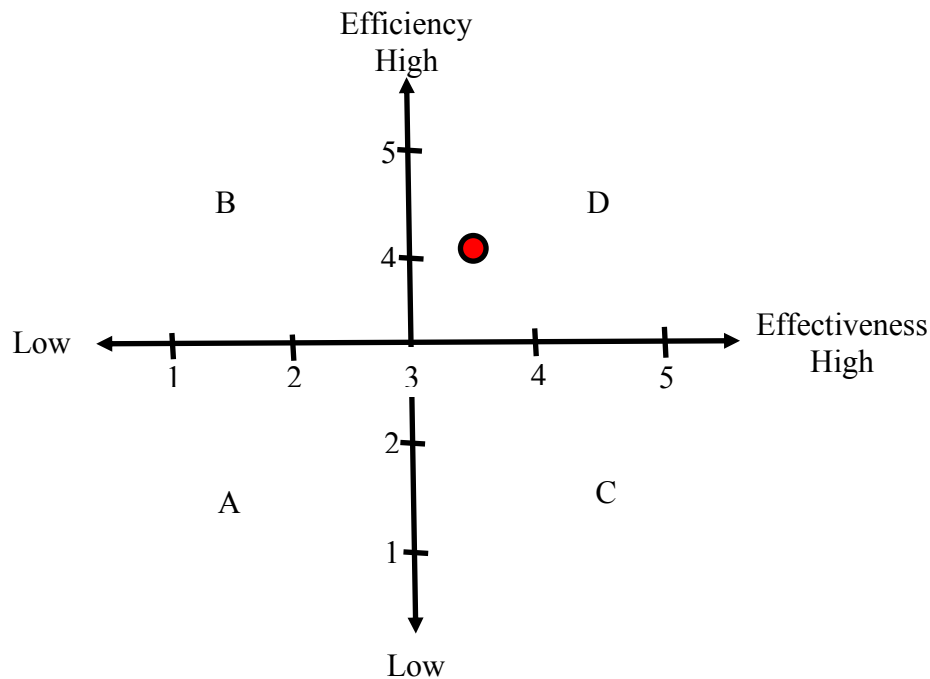


FIGURE 10: ORGANIZATION GOAL SPACE (ADAPTED FROM BURTON ET AL., 2015)

According to Burton et al. (2015), the results from the assessment questions on efficiency versus effectiveness in Figure 10 indicate that the organization emphasizes both by confronting competitive, complex, and volatile environments that require both product innovations and low cost in order to compete. The results to this series of questions infer a current understanding of the strategic direction for operations in the 437 AW, not how successful the organization is executing efficiently or effectively. Graphically, the results indicate a moderate to high level of effectiveness and efficiency. The results were contrary to initial assumptions that maintenance organizations are considered more effective than efficient.

The implication of these results, if carried forward to other, like organizations, would suggest very few changes are necessary to the current design. These results, however, cannot be

juxtaposed onto other organizations without taking into consideration the varying nature of operations within each maintenance organization. The limited scope of this assessment shows one specific maintenance organization performing near optimal levels, suggesting goals are aligned between individuals and organization to meet established objectives (Fan, 2003). Organizations that are failing to meet readiness levels should consider conducting their own diagnostic assessment.

Investigative Question 2: Should mobility maintenance organizations only seek to refine current products and processes?

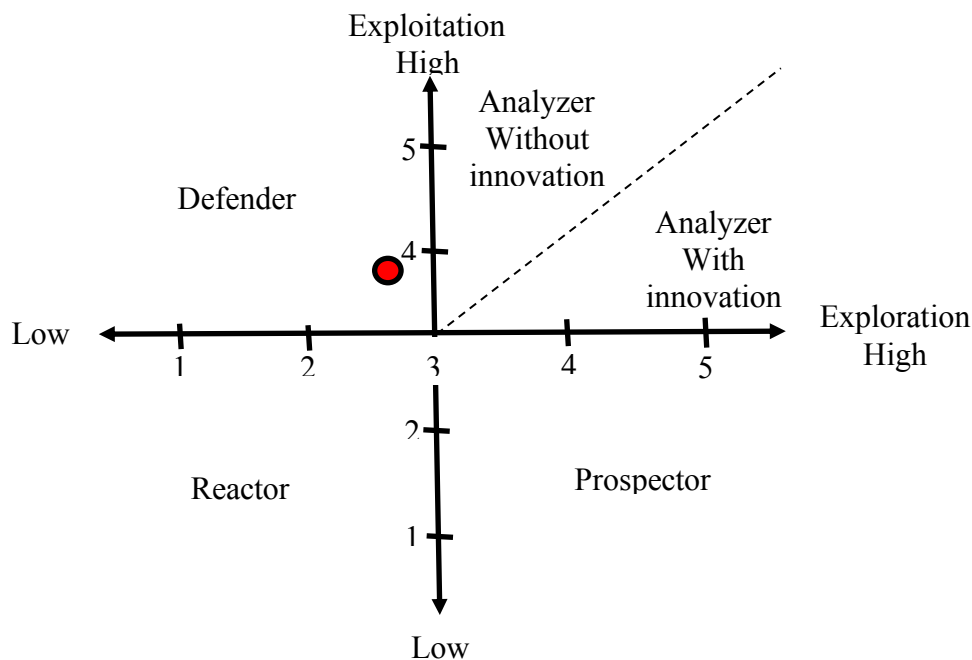


FIGURE 11: ORGANIZATION STRATEGY SPACE (ADAPTED FROM BURTON ET AL., 2015)

Innovation and the ability for an organization to explore new processes and ways of doing business build upon an organization's ability to be effective and efficient and are expressed through a comparison of organizational strategy goals. The results to determine in which category the organization would choose to align with its strategy can be found in Figure

11. The average results from this series of diagnostic questions indicate the organization is innovative only in narrow, limited areas which is confined and highly focused (Burton et al., 2015).

The only way to maintain a competitive edge as a “defender” is to acquire detailed and focused information for continuous refinement of current products and production (Burton et al., 2015). Burton et al. (2015) conveys that defenders must be efficient in the utilization of resources. This becomes the organization’s primary goal with little focus on effectiveness. The constant push for innovation of new ideas could slide the organization down to the “prospector” category where innovation usurps efficiency and exploitation of existing opportunities, such as commercial off the shelf (COTS) products (Burton et al., 2015).

The pursuit of innovative technology may increase productivity a small percentage, but as Delta Tech Ops discovered, the majority of their success in eliminating maintenance cancellations (approximately 90 percent) came from refining processes (Klein, 2019). In the case of mobility maintenance organizations, investing in options with innovative technology for maintenance organizations could push it out of the Defender category into either the Prospector or Analyzer categories. Maintenance organizations are constantly striving to achieve optimal readiness for aircraft generation; therefore, investing time and money into innovative technology could be the push it needs to reach the next level of success.

Investigative Question 3: Should mobility maintenance organizations redesign to operate in a functional configuration for optimal readiness?

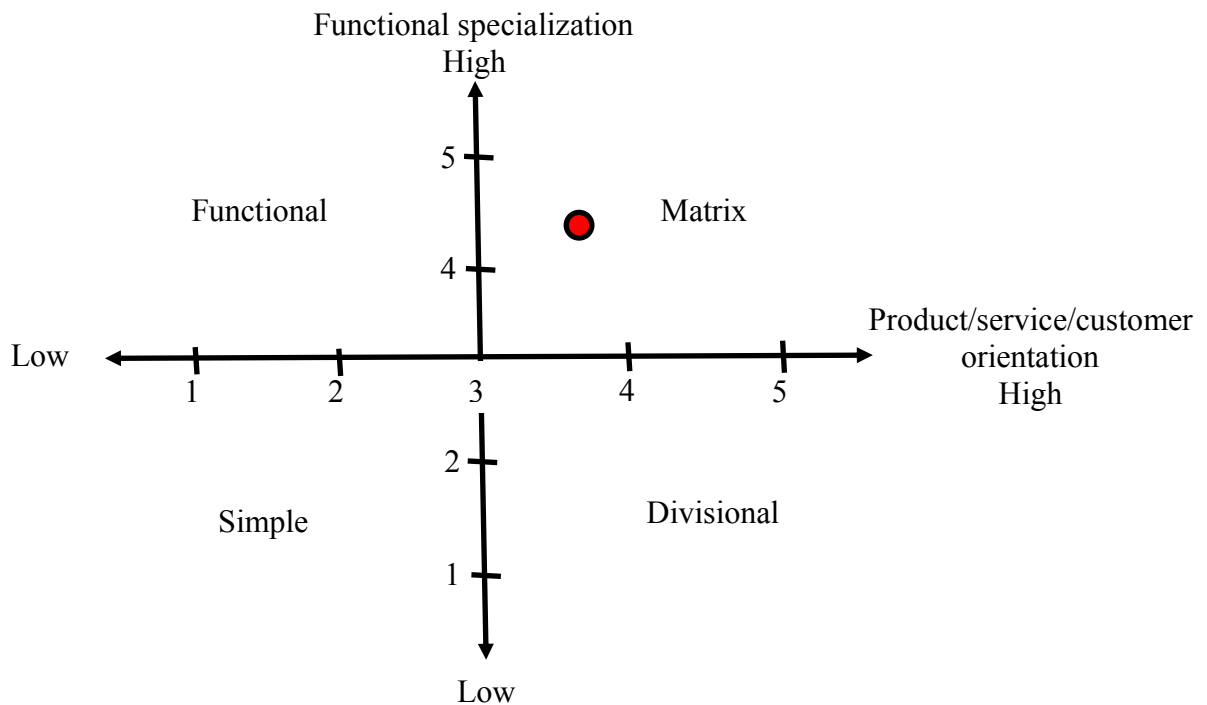


FIGURE 12: ORGANIZATION CONFIGURE SPACE (ADAPTED FROM BURTON ET AL., 2015)

To determine what type of organizational design structure an organization needs to execute its strategy, it must analyze the current configuration. According to the results depicted in Figure 12, the organization functions in a matrix configuration--suggesting a need for a high information-processing capacity to achieve efficiency and effectiveness (Burton et al., 2015). This is contrary to any assumption of how a stereotypical maintenance organization may function. The thought that maintenance organizations operate under the idea of breaking tasks down and assigning them to specialty shops while coordination is accomplished hierarchically using a series of rules and directives would suggest a functional configuration (Burton et al., 2015). However, more perceived focus on products, services, or customers and its moderate to high perception of functional specialization indicated the 437 MXG values a mixture of these

items. Due to the perceived understanding of the diagnostic questions, a few of the participants were unsure how some of the questions applied to their organization. While this is a visualization of what the members perceive as valuable to leadership, further analysis of key performance indicators (KPIs) would need to be conducted.

Upon reflection, one could easily see how a mobility maintenance organization could be viewed as a matrix organization. While maintenance organizations are generally segregated functionally, by career field, they also operate with a relatively high product orientation – producing aircraft to meet flying requirements. Upon closer analysis, it is apparent that the structure established by AFI does not support the structure that is most optimal, according to the participants. Maintenance organizations, as mentioned earlier, are aligned more functionally, but results from this pilot assessment indicate the organization operates in a matrix setup. One may conclude that readiness levels are not being met due to the mismatch between the organization's designed structure and its actual performance of work.

Investigative Question 4: Should mobility maintenance organizations strive to be highly collaborative in a low repetitive environment?

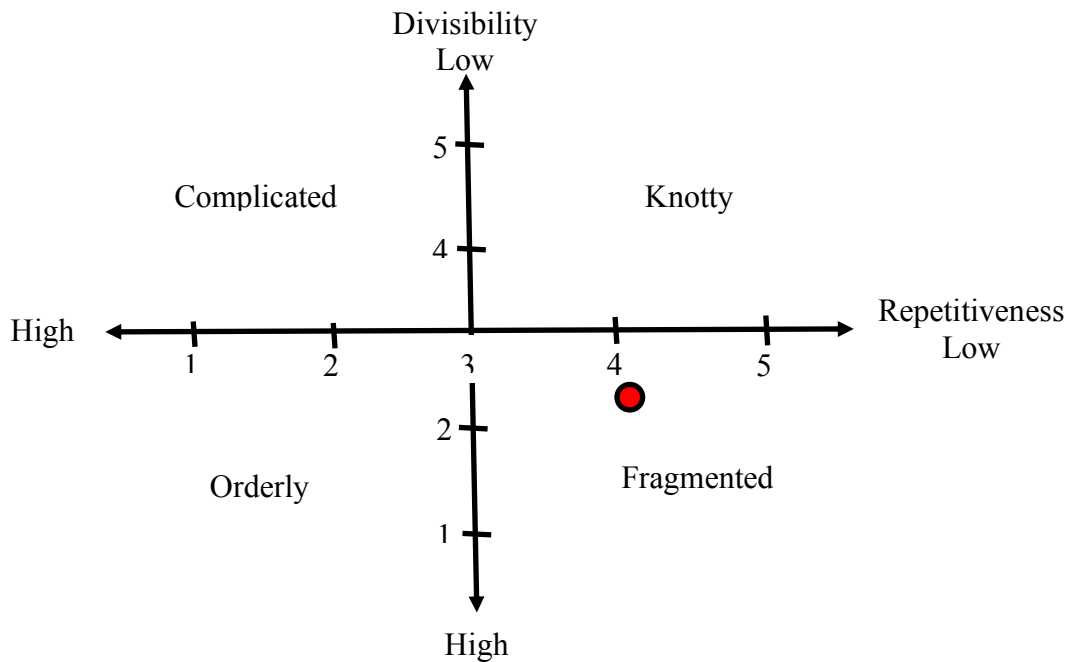


FIGURE 13: ORGANIZATION TASK DESIGN SPACE (ADAPTED FROM BURTON ET AL., 2015)

For an organization that operates in a “fragmented” task design workspace, high divisibility and low repetitiveness are indicative of a need for less coordination and interference from executive leadership and the issuance of more resources to conduct its business, respectively (Burton et al., 2015). Figure 13 completes the picture of a “fragmented” task design structure of the 437 MXG as assessed by previous maintenance officers in the organization. While acknowledging that coordination is still needed among sub-units, they can still operate somewhat autonomously and discover innovative ways to accomplish non-repetitive tasks.

The lack of collaboration within the organization implies less desirable readiness levels and a misalignment with organizational strategy. It also leads to less effectiveness and efficiency within the organization. The low repetitive nature of maintenance organizations drives a collaborative nature; not doing so has internal and external implications. Burton et al. (2015)

states fragmented task design structures make way for sub-units to process work at their own pace without having to depend on other units to complete their work. This task design structure is contrary to standard business practices with the current organizational structure where each sub-unit is dependent on other sub-units for parts, fuel, and more invasive maintenance. Mobility maintenance organizations should strive to be more “Knotty” in their task design structure.

Investigative Question 5: Should mobility maintenance organizations redesign to streamline information flow from the point of origin to the decision-maker?

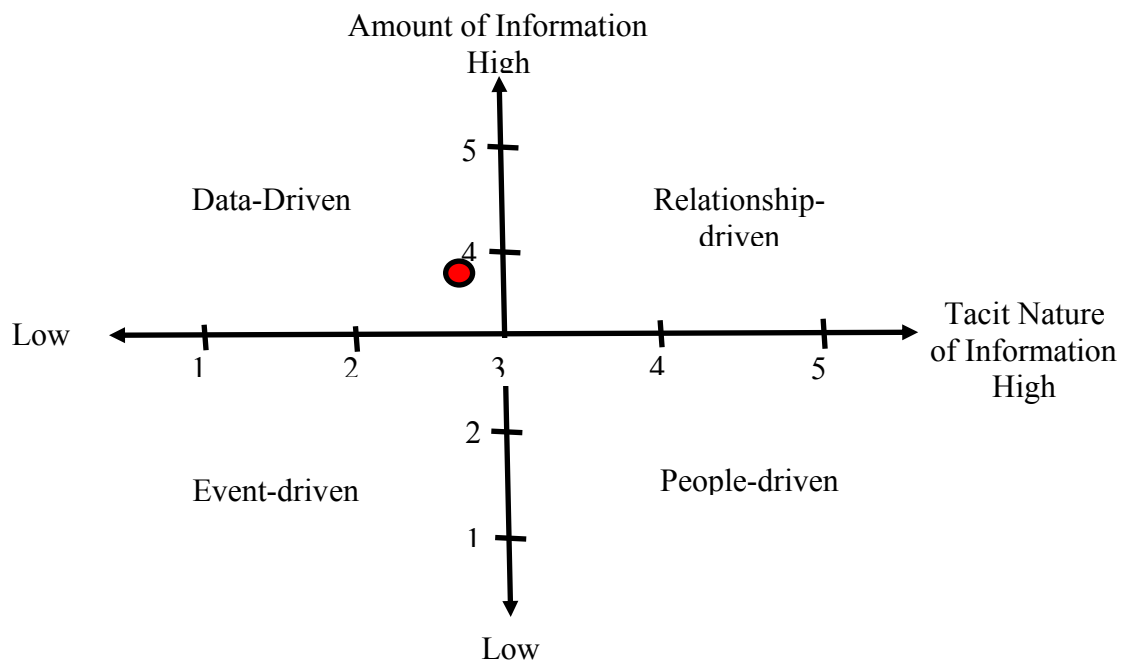


FIGURE 14: ORGANIZATION'S INFORMATION AND KNOWLEDGE SYSTEMS SPACE (ADAPTED FROM BURTON ET AL., 2015)

The results displayed in Figure 14 show the organization as one that must process high volumes of information in a systematic and intelligent manner in order to increase information-processing capacity (Burton et al., 2015). Participants confirmed that mobility maintenance organizations strive for high quantities of information in order to make complex, data-driven decisions. Burton et al. (2015) describes that information that is readily captured and stored, such

as the case within maintenance organizations, bring timely, detailed information to decision makers. The insightful observation by tactical leaders about the need for data-driven information for the decision-makers confirm the need for continued investigation in organizational design change.

For an organization that constitutes upwards of a thousand members, emphasis on relationships and people should be considered when developing an organization's structure. Many models focus on such characteristics, such as Burton et al. (2015) multi-contingency design model which underpins this research. Taking relationships and people into account when redesigning will impact the areas of goals, strategy, coordination, and processes (Burton et al., 2015).

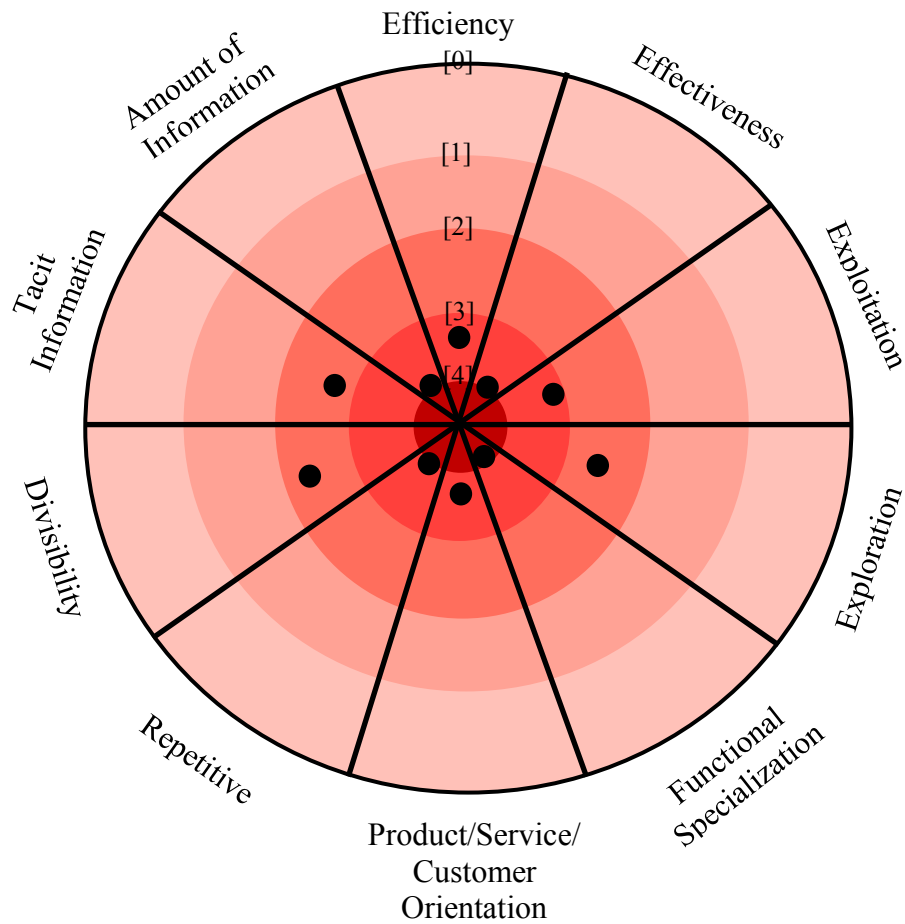


FIGURE 15: NOTIONAL ORGANIZATIONAL DESIGN CHANGE ASSESSMENT MODEL

Figure 15 presents the summary of assessment scores. The questions asked participants to use a 1 to 5 Likert scale response with 1 being very low up to 5 being very high. The average results of each category were presented in Table 1 and are illustrated in Figure 15. The outer edge of the outer ring begins at zero and increases to a maximum of five at the center. Readers should not interpret the convergence of the scores to mean perfection, but should, instead, evaluate each category based on the organization's alignment with its overall design strategy. In the case of determining whether the 437 MXG is ready for change is conditional upon its overall strategy and design emphasis. The figure allows practitioners to get a dashboard-style view of the organization's assessment results.

Senior leaders can use this notional model to determine which organizations may be ready for change. It is important to determine which method is best for representation – average score, raw data, etc. Given the raw data, leaders can really evaluate the areas within their organization that need special attention. Whatever method is used to display results, it is important each unit conduct analysis in like manner and present the results accordingly.

V. CONCLUSION

Efforts to pursue an organizational redesign should not be embarked upon haphazardly. It takes careful planning and consideration of the organization's overall strategy. Performing a holistic approach to the design process will ensure a complete understanding of the organization's current state and desired end state. A review of literature provided insights into determining an organization's readiness to design change. Butler et al. (2015) offered a step-by-step approach to organizational design change as well as valuable assessments for any prospective organization. While many design structures were presented for consideration, most fell into a category of centralized, decentralized, or a hybrid structure. The decision on which structural design to pursue should undergo careful scrutiny. Organizational design theory can be exercised across any unit, no matter how big or small. It will take the mental and physical fortitude of every member in the organization to take on the challenge of redesigning. Air Mobility Command has a unique opportunity to shape the future of rapid global mobility by allowing its organizations to drive change through structural experimentation. The time for mobility maintenance organizational change has come. Are they ready?

The research conducted with regard to the 437 MXG and the results obtained from a small sampling of previous tactical leaders, suggest the organization is a suitable candidate for a full organizational change assessment. The findings from the responses indicate a disparity between the way the organization is designed and the tasks it is being asked to conduct. This research is the first of its kind in an effort to change the way AMC views its operational organizations and the way they are structurally aligned. To meet strategic goals, AMC must highlight organizations that would offer the best return on investment (i.e., readiness) through organizational change.

Recommendations

The recommendations that follow are not meant to be a one-size-fits-all proposition, but may have implications on certain Mission Design Series aircraft versus a single mobility unit. While reorganization should not be applied as a blanket approach across all maintenance platforms, a pilot study on similar aircraft (i.e., C-130, C-17A, etc.) may offer valuable insights. Recommendations for future research are offered for anyone exploring further qualitative study on reorganization for mobility organizations. There are many aspects to organizational design; each must be approached with the organization's overall strategy in mind. Allowing critical information to flow from originator to decision-maker in the timeliest manner may be best accomplished through "delaying" some of the hierarchical structure and taking a hybrid approach.

Practically, delaying may involve removing group commander functions and allowing squadron commanders to execute strategic guidance directly from the wing commander. Optimization of maintenance functions such as maintenance scheduling and analysis could best be accomplished through centralization at the Major Command; this would be very similar to practices done by Delta, Atlas Air, and United Postal Service. Further alignment of mission generating functions (i.e., supply, fuel, etc.) may prove optimal as well. Utilizing the experience and expertise of senior logistics officers at the fleet management or depot level could provide far-reaching benefits that were not seen at the organizational level.

Limitations and Future Research

Limitations of this research include the small sample of respondents for the organizational assessment and the limited literature available on military organizational design. Also, there was limited access to quantitative data on the organizational restructuring

experiments taking place in the Combat Air Force. The use of that data and discussions on the reasoning for structural experiments could aid in determining if similar discussions need to be had in the mobility force. The research presented in this paper could not offer readers a comprehensive assessment on readiness for organizational design and therefore suggest four areas for future research: 1) determining what mobility organizations are ready for change and conduct a full assessment of those organizations; 2) determining the threshold for change; 3) determining the “north star” metric for mobility logistics and how it impacts organizational design; and 4) career path implications for senior maintenance officers.

Not every organization needs to undergo a complete organizational redesign. It is important to conduct a complete assessment of the organization prior to making any major changes. Determining which units are right for change should involve a full assessment. Additionally, to ensure proper comparisons are made, organizations with similar or the same Mission Design Series aircraft and Wing structure should be evaluated.

It is unfortunate that many organizations have relieved leaders due to lack of confidence, such as the recent logistics commander at Osan Air Base, South Korea (Pawlyk, 2020). Research on the threshold for organizational change could assist in avoiding such organizationally destructive events. It is this researcher’s opinion that toxic leaders have no place in organizations, especially where national security interests are at stake.

The maintenance community is heavily driven by metrics. But what metric impacts the desired outcome the best? The Mobility Air Force has a different function than the Combat Air Force (CAF), therefore a “north star” metric that can guide mobility maintenance organizations to ensure mission success would help in determining the kind of structure would be best suited for implementation. The metric needs to accurately predict readiness levels for each

organization; it is not always beneficial to rely on historical data to make predictions about future readiness. Drucker (2017) is remembered as saying, “The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday’s logic.”

Many argue the efficacy of having a senior maintainer as the organizational leader. This research does not diminish that fact and is not advocating for a draw-down in senior maintenance officer positions – just a reallocation. Future research on the professional development and career path of maintenance officers will be a large part of the discussion matrix when considering an organizational redesign of the mobility maintenance structure.

Summary

Organizations are always trying to find ways to increase profits. While the Air Force is not a for-profit organization, it does strive to meet readiness goals in support of the national defense strategy. A review of literature provided many options for determining if an organization is ready for an organizational design change. Completing an organizational assessment would determine if change is necessary and if the organization is ready for such change. Burton et al. (2015) provided a detailed, systematic method to completing a redesign post assessment. Their multi-contingency design model offers a holistic approach that future leaders can use to ensure alignment with strategic organizational goals. Organizational design is a monumental task, which is why nearly 70 percent of change initiatives fail (Pellettiere, 2006). Change influencers should take care when navigating the restructuring efforts and ensure complete buy-in from organizational members. The mobility maintenance community may do well to remember the words of Goldsmith (2007), “Whatever got you here may well prevent you from getting there.”

APPENDIX A. Assessment Tables

TABLE 2: ORGANIZATIONAL EFFICIENCY/EFFECTIVENESS DIAGNOSTIC QUESTIONS (SOURCE: BURTON ET AL., 2015: 22)

How does the organization score on efficiency?	Score (1 - 5) 1=Very Low 3=Moderate 5=Very High
Does the firm discuss the relation between the input of resources and the output of products and/or services; does the firm want to utilize its resources well?	1 2 3 4 5
Does the firm discuss (and value) the relation between the effort spent by employees and what they produce; does the firm want to make good use of the employees' skills?	1 2 3 4 5
Does the firm support employee skills development and learning for enhancing productivity?	1 2 3 4 5
Does the firm's leadership articulate its concern for a strong relationship on the above?	1 2 3 4 5
How does the organization score on effectiveness?	
How close does the firm want to be to its customers; does it meet the customer needs precisely - present and anticipated?	1 2 3 4 5
How close does the firm want to be to social demands, including its regulators; does it want to meet environmental needs - present and anticipated?	1 2 3 4 5
How close does the firm want to be to its suppliers, including outsourcers; does it want to relate to supplier needs and concerns - present and anticipated?	1 2 3 4 5
How close does the firm want to be to its financiers and stockholders; does it value its relations with its owners, banks, and financial institutions - present and anticipated?	1 2 3 4 5

TABLE 3: STRATEGY SPACE DIAGNOSTIC QUESTIONS (SOURCE: BURTON ET AL., 2015: 42)

Exploration	Score (1 - 5) 1 = Very Low 3 = Moderate 5 = Very High
How innovative are the firm's products?	1 2 3 4 5
What is the price compared to the value of the product?	1 2 3 4 5
What is the price level compared to the quality level?	1 2 3 4 5
How frequently does the firm develop new products?	1 2 3 4 5
Exploitation	
What is the firm's degree of process innovation?	1 2 3 4 5
What are its prices compared to the competition?	1 2 3 4 5
What is its quality in terms of its standardization and reliability?	1 2 3 4 5
What is the number of products the organization has compared to its competitors?	1 2 3 4 5
What are the barriers to entry in its industry?	1 2 3 4 5

TABLE 4: CONFIGURATION SPACE DIAGNOSTIC QUESTIONS (SOURCE: BURTON ET AL., 2015: 88)

Product/Service/Customer Orientation	Score (1 - 5) 1 = Very Low 3 = Moderate 5 = Very High
Is the focus of your activities on internal operations of the organization (1), or are you more focused toward products, services, and/or customers (5)?	1 2 3 4 5
To what extent do you form sub-units to organize work around your customers?	1 2 3 4 5
To what extent do you form sub-units to organize work around your firm's products or services?	1 2 3 4 5
Functional Specialization	
To what extent does your organization create sub-units based on specialties or skills of its workers?	1 2 3 4 5
Is your orientation toward specialization of functions and clear definition of jobs, i.e. high on functional specialization, or is your orientation low on specialization?	1 2 3 4 5
To what extent does the firm have clearly defined roles and responsibilities for various sub-units?	1 2 3 4 5

TABLE 5: TASK DESIGN SPACE DIAGNOSTIC QUESTIONS (SOURCE: BURTON ET AL., 2015: 140)

What is the degree of repetitiveness of the task in the firm, i.e. high to low?	Score (1 - 5) 1 = Very Low 3 = Moderate 5 = Very High
Does the firm treat each work task as unique (low)?	1 2 3 4 5
Does it execute the task today much as it did yesterday (high), or is there a good deal of variation (low)?	1 2 3 4 5
To what extent does it standardize the task (high) rather than customize it (low)?	1 2 3 4 5
What is the degree of divisibility of the task in the firm, i.e. high to low?	
Does the firm divide its big task into sub-tasks that are independent of one another (high), or are the sub-tasks connected, requiring a large amount of coordination (low)?	1 2 3 4 5
Does it manage the task as a set of specialized independent functions (high) or as a process flow (low)?	1 2 3 4 5
To what extent are the units that perform the sub-tasks free to design their work as they wish (high) rather than as instructed (low)?	1 2 3 4 5

TABLE 6: ORGANIZATION'S INFORMATION AND KNOWLEDGE SYSTEMS DIAGNOSTIC QUESTIONS
(SOURCE: BURTON ET AL., 2015: 208)

Tacit nature of information	Score (1 - 5) 1 = Very Low 3 = Moderate 5 = Very High
To what extent is the vital knowledge of the firm codifiable (1) or non-codifiable (5), in the sense that it does not lend itself to being explicitly captured, processed, and stored?	1 2 3 4 5
Could most of the important information that is exchanged within the firm be readily recorded on paper or in a computer system (1 = yes, 5 = no)?	1 2 3 4 5
Does the information exchanged within the organization require interpretation in order to be meaningful (1 = not much interpretation required, 5 = high interpretation required)?	1 2 3 4 5
Is information relatively easy to understand and explain (1), or are there subtleties to understanding the information, requiring specialized experience or expertise to fully "make sense" of the information (5)?	1 2 3 4 5
Amount of information	
Are most of the organization's work tasks unique (1), or are the work tasks repeated in large volume (5)?	1 2 3 4 5
Does execution of work tasks rely on having a relatively small (1) or large (5) amount of data available to the worker or decision-maker responsible for the task?	1 2 3 4 5
To what extent are there common types of data that can be captured and made useful for many transactions and tasks (1 = low extent, 5 = high extent)?	1 2 3 4 5

APPENDIX B: Storyboard



RESTRUCTURING MOBILITY MAINTENANCE ORGANIZATIONS - IS IT TIME FOR CHANGE?



Abstract

The United States has spent the last 2 decades focusing on extreme terrorists, and while we have gotten really good at it, we have lost some technical skills needed to fight a major theater war against a superpower such as Russia or China. The Air Force has been hindered by a large bureaucratic system, with filtered and watered-down information being transmitted to decision-makers. A major component of war is the ability to move things anywhere in the world at any time — logistics.

Transportation Command and its air component, Air Mobility Command, has the primary role and responsibility to move people and equipment around the world. While becoming very effective in standard practices, resting on past laurels will be the "Achilles heel" of the command. Organizations within Air Mobility Command must adapt if it wishes to overcome — this includes restructuring how they are organized. This is never more evident than in the bureaucratic hierarchy that is the Maintenance Group. This paper will offer a practical application of an assessment to answer the question, "Are mobility maintenance organizations ready for structural change?"

Methodology

Organizational design methodology was used to assess an organization's readiness for structural change. The multi-contingency diamond design model used in this research comes from Burton et al (2015) and offers a holistic approach to addressing organizational structure change.

This methodology uses a seven step process. Success of this process is predicated on the extensive analysis of diagnostic questions geared towards understanding the organization's efficiency, effectiveness, exploration, exploitation, specialization, product orientation, replication, divisibility, tacit and amount of information.

Research Objective

The objective of this study will be to examine an organization's readiness to changes in its organizational structure. This study will take a qualitative look at design options best suited for mobility maintenance organizations. It is formatted to stimulate conversation regarding the future structural design of the Air Force Maintenance Group.

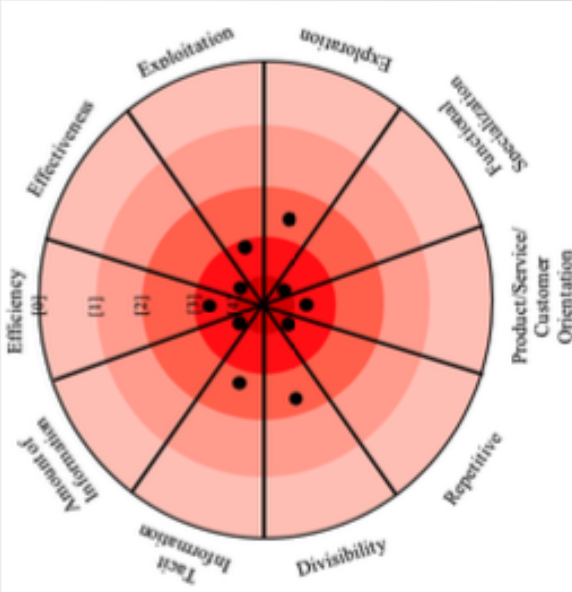
Research Implications

Implications of this research include potential changes to many Air Force organizations, to include AMC. Centralizing mission control for global optimization and decentralizing execution of rapid global mobility will increase mission readiness throughout the command. Making even subtle changes to the way the organization is structured can have monumental impacts to mission readiness. Second and third order of effects cannot be determined from this analysis, creating a demand for further research on the subject.

Collaboration

Delta Tech Ops
Company Grade Officers from the 437 MXG





Major Eric S. Peele
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