



**A CLASSICAL DELPHI STUDY: AN ANALYSIS OF THE MULTI-CAPABLE AIRMEN  
(MCA) CONCEPT FOR AIR TRANSPORTATION OPERATIONS**

Graduate Research Paper

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AFIT-ENS- MS-22-J-051

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Chair

### **Abstract**

The USAF Air Transportation career field is a critical element in the overarching capability of the logistics supply chain. Throughout history, the military supply chain's capability and construct has evolved in order to meet combatant commander's needs and sustain the force in an ever-changing environment. The same is true today in that a new approach to warfare in conflict with a near peer competitor will require a change in how we approach the projection of airpower. Logistics Under Attack (LUA) and the concept of Agile Combat Employment (ACE) presents new challenges for the supply chain and those ground support personnel who will be called to sustain the employment of airpower across the globe. This research examines specific skills and abilities from the Air Transportation career field and which might best apply to the Multi-Capable Airman (MCA) concept.

Expert Air Transportation logisticians from across the U.S. were selected and queried in order to gather and analyze data for this research. Both qualitative and quantitative processes were employed in this study through the use of surveys in an open response and Likert scale format and the subsequent analysis of the data. The goal of this research is to key in on the ideal jobs, duties and tasks that could be potentially included in the creation of MCA training programs led by Air Transportation personnel. In addition, the research also explores those jobs, duties and tasks outside of the Air Transportation career field's core competencies that would offer 2T2 airman the opportunity to broaden their own capabilities through an MCA training program. Ultimately, the research provides insight on how the USAF can develop and define the Multi-Capable Airman concept as a means to create an agile workforce. Investing in and expanding the talents and capabilities of our airmen via MCA will bolster the USAF's ability to project and sustain airpower in a dispersed and contested environment.

*To my family, especially my mother, my sister, my fiancé, and my three children for all your love and continuous support.*

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I want to extend my appreciation and well-wishes to my advisor, Lt Col Matthew Roberts, as he is nearing military retirement and will be heading for Academia in the private sector. Your guidance early on in this endeavor and support throughout the course of this program was invaluable.

A special thank you to men and women of the USAF Air National Guard who served on the expert panel for this study, I would not have been able to complete this research without you. Your willingness to participate, thoughtful consideration in survey responses, and commitment to the process was more than I could have ever asked for - I am in your debt. My sincerest hope is that the work we put in here will somehow benefit the men and women of the 2T2 community.

Thank you to Col Jeremy Schaad, 153d Airlift Wing Vice Commander, for sponsoring this research and offering me the opportunity to bring this analysis presentation back to Wyoming.

Lastly, to my classmates here in the Advanced Study of Air Mobility 2022 program – it never fails to amaze me, the outstanding men and women that make up our Air Force and the special bonds we build serving and learning together – Aim High & Find the Solution.

## Table of Contents

|                                                                  | Page |
|------------------------------------------------------------------|------|
| Abstract .....                                                   | iv   |
| Acknowledgements .....                                           | vi   |
| List of Figures .....                                            | x    |
| List of Tables .....                                             | xi   |
| List of Equations .....                                          | xiii |
| I. Background and Research Problem.....                          | 1    |
| 1.1 Background .....                                             | 1    |
| 1.2 Research Problem.....                                        | 2    |
| 1.3 Research Questions .....                                     | 2    |
| 1.4 Investigative Questions .....                                | 3    |
| 1.5 Research Objectives .....                                    | 3    |
| 1.6 Methodology .....                                            | 4    |
| 1.7 Assumptions and Limitations.....                             | 6    |
| II. Literature Review .....                                      | 8    |
| 2.1 Anti-Access/Area (A2/AD) Denial Environment .....            | 8    |
| 2.2 Agile Combat Employment (ACE) & Distributed Operations ..... | 11   |
| 2.3 Aerial Port Operations.....                                  | 12   |
| 2.4 Air Transportation (2T2) Competencies .....                  | 16   |
| 2.5 Multi-Capable Airmen .....                                   | 16   |
| III. Methodology .....                                           | 19   |
| Overview .....                                                   | 19   |
| Classic Delphi Study Flow .....                                  | 20   |
| Experts.....                                                     | 22   |
| Instrumentation.....                                             | 23   |
| Round 1 Survey .....                                             | 23   |
| Round 2 Survey .....                                             | 24   |
| Round 3 Survey .....                                             | 25   |

|                                                              |    |
|--------------------------------------------------------------|----|
| IV. Analysis and Results.....                                | 27 |
| 4.1 Overview .....                                           | 27 |
| 4.2 Delphi Study Round 1 Data Collection.....                | 27 |
| 4.3 Round 1 Survey Questions.....                            | 29 |
| 4.3.1 Round 1 - Question 1 .....                             | 29 |
| 4.3.2 Round 1 – Question 2.....                              | 30 |
| 4.3.3 Round 1 – Question 3.....                              | 30 |
| 4.3.4 Round 1 – Question 4.....                              | 31 |
| 4.3.5 Round 1 – Question 5.....                              | 31 |
| 4.3.6 Round 1 – Question 6.....                              | 32 |
| 4.3.7 Round 1 – Question 7.....                              | 32 |
| 4.3.8 Round 1 – Question 8.....                              | 33 |
| 4.4 Delphi Study Round 2 Data Collection.....                | 34 |
| 4.4.1 Round 2 Likert Scale Results .....                     | 36 |
| 4.4.2 Round 2 Central Themes Mean Scores .....               | 40 |
| 4.4.2.1 Round 2 – Question 1 .....                           | 40 |
| 4.4.2.2 Round 2 – Question 2 .....                           | 41 |
| 4.4.2.3 Round 2 – Question 3 .....                           | 41 |
| 4.4.2.4 Round 2 – Question 4.....                            | 42 |
| 4.5 Round 3 Data Collection.....                             | 42 |
| 4.5.1 Kendall’s Coefficient of Concordance ( <i>W</i> )..... | 44 |
| 4.5.2 Round 3 Survey Questions Results.....                  | 44 |
| 4.5.2.1 Round 3 – Question 1 .....                           | 45 |
| 4.5.2.2 Round 3 – Question 2 .....                           | 46 |
| 4.5.2.3 Round 3 – Question 3 .....                           | 47 |
| 4.5.2.4 Round 3 – Question 4.....                            | 48 |
| 4.6 Investigative Questions Answered.....                    | 48 |
| 4.6.1 Investigative Question 1.....                          | 49 |
| 4.6.1 Investigative Question 2.....                          | 50 |
| 4.6.2 Investigative Question 3.....                          | 51 |
| 4.6.3 Investigative Question 4.....                          | 52 |
| 4.7 Research Questions Answered.....                         | 53 |
| 4.7.1 Research Question 1 Answered .....                     | 53 |
| 4.7.1.1 Rounds 2 & 3 Comparison Chart 1 .....                | 55 |
| 4.7.1.2 Rounds 2 & 3 Comparison Chart 2 .....                | 56 |
| 4.7.1.3 Rounds 2 & 3 Comparison Chart 3 .....                | 57 |
| 4.7.2 Research Question 2 Answered .....                     | 59 |

|              |                                                     |    |
|--------------|-----------------------------------------------------|----|
| 4.7.2.1      | Rounds 2 & 3 Comparison Chart 4 .....               | 60 |
| IV.          | Conclusions and Recommendations .....               | 62 |
| 5.1          | Conclusions of Research .....                       | 62 |
| 5.2          | Significance of Research.....                       | 63 |
| 5.3          | Recommendations for Action and Future Research..... | 63 |
| Appendix A   | .....                                               | 65 |
| Appendix B   | .....                                               | 66 |
| Appendix C   | .....                                               | 67 |
| Appendix D   | .....                                               | 71 |
| Appendix E   | .....                                               | 72 |
| Appendix F   | .....                                               | 82 |
| Appendix G   | .....                                               | 83 |
| Appendix H   | .....                                               | 88 |
| Appendix I   | .....                                               | 92 |
| Bibliography | .....                                               | 95 |

## List of Figures

|                                                             | Page |
|-------------------------------------------------------------|------|
| Figure 1: Classic Delphi Method .....                       | 4    |
| Figure 2: Chinese Missile Threat Crisis.....                | 10   |
| Figure 3: Illustration of Cargo Pallet Loading.....         | 14   |
| Figure 4: Illustration of New Generation Small Loader ..... | 14   |
| Figure 5: Cargo Weight and Processing .....                 | 15   |
| Figure 6: Air Transportation (2T2) Competencies .....       | 16   |
| Figure 7: The Classic Delphi Technique Diagram .....        | 21   |
| Figure 8: Expert Panel Base Locations Map.....              | 22   |
| Figure 9: Round 1 Word Cloud .....                          | 34   |

## List of Tables

|                                                                                     |    |
|-------------------------------------------------------------------------------------|----|
| Table 1: Round 1 Survey - Question 1.....                                           | 29 |
| Table 2: Round 1 Survey - Question 2.....                                           | 30 |
| Table 3: Round 1 Survey - Question 3.....                                           | 30 |
| Table 4: Round 1 Survey - Question 4.....                                           | 31 |
| Table 5: Round 1 Survey - Question 5.....                                           | 31 |
| Table 6: Round 1 Survey - Question 6.....                                           | 32 |
| Table 7: Round 1 Survey - Question 7.....                                           | 32 |
| Table 8: Round 1 Survey - Question 8.....                                           | 33 |
| Table 9: Round 2 Likert Scale Results - Question 1.....                             | 36 |
| Table 10: Round 2 Likert Scale Results - Question 2.....                            | 37 |
| Table 11: Round 2 Likert Scale Results - Question 3.....                            | 38 |
| Table 12: Round 2 Likert Scale Results - Question 4.....                            | 39 |
| Table 13: Round 2 Central Themes Mean Scores - Question 1.....                      | 40 |
| Table 14: Round 2 Central Themes Mean Scores - Question 2.....                      | 41 |
| Table 15: Round 2 Central Themes Mean Scores - Question 3.....                      | 41 |
| Table 16: Round 2 Central Themes Mean Scores - Question 4.....                      | 42 |
| Table 17: Agreement Measures for Categorical Data (Landis and Koch, 1977:165) ..... | 43 |
| Table 18: Round 3 - Question 1 Rankings.....                                        | 45 |
| Table 19: Round 3 - Question 2 Rankings.....                                        | 46 |
| Table 20: Round 3 - Question 3 Rankings.....                                        | 47 |
| Table 21: Round 3 - Question 4 Rankings.....                                        | 48 |
| Table 22: Rounds 2 & 3 Comparison - Question 1.....                                 | 55 |

|                                                     |    |
|-----------------------------------------------------|----|
| Table 23: Rounds 2 & 3 Comparison - Question 2..... | 57 |
| Table 24: Rounds 2 & 3 Comparison - Question 1..... | 58 |
| Table 25: Rounds 2 & 3 Comparison - Question 1..... | 60 |

## **List of Equations**

|                                                           |    |
|-----------------------------------------------------------|----|
| Equation 1: Kendall's Coefficient of Concordance (W)..... | 44 |
| Equation 2: Sum-of-squared from row sums of ranks .....   | 44 |
| Equation 3: Correction for tied rankings .....            | 44 |

# A CLASSICAL DELPHI STUDY: AN ANALYSIS OF THE MULTI-CAPABLE AIRMEN (MCA) CONCEPT FOR AIR TRANSPORTATION OPERATIONS

## I. Background and Research Problem

### 1.1 Background

The United States Air Force has been in conflict in the Middle East for the last two decades. Operating in a relatively uncontested environment against an enemy nowhere near our ability, range, and power. However, in looking at a future fight with a peer adversary, particularly in the Indo-Pacific region, it is clear that a war of this magnitude will undoubtedly test our ability to adapt our past modus operandi of projecting power from major bases. Like any great strategic undertaking, change and development is needed at all levels of operations to determine where we might be able to add value to the war fighting effort. One such measure of change and development is the concept of Multi Capable Airmen (MCA).

Multi Capable Airmen (MCA) is defined as, “Airmen accomplishing tasks outside their core Air Force Specialty. Specifically, these personnel train as a cross-functional team to meet and provide combat support to aviation force elements conducting dispersed and dynamic operations.” (Kelly, 2019). While this concept may not work for every Air Force Specialty Code (AFSC), it has already proven to be a useful tool in capitalizing on the cross utilization of an airmen’s knowledge, skills, and abilities (KSAs) in an effort to render increased agility in supporting airpower. In an interview with Maj Gen Mark Camerer, the Commander of the USAF Expeditionary Center, on the topic of MCA, he commented on the proven use of the concept in specific instances, “We do this today with great success in the CRWs so it’s a proven and demonstrated model. We do it to some extent in our AMOWs [Air Mobility Operations Wing] with maintainers. Maybe they were a C-5 [maintainer] but also have the training and

capability to work on a C-17, so that those Airmen can work on more than one kind of aircraft.” (Knight, 2021). While the primary use of this concept has been focused on the maintenance career fields, my aim is to research the application in the realm of logistics.

Our adversaries have professed their knowledge of key U.S. basing points in the Indo-Pacific region. Their presumption is that the U.S. will utilize these bases and staging points to project airpower and to serve as a conduit for their logistics supply chain. Andersen Air Force Base in Guam is a key example of one such major base that will house a large amount of resources and will serve as a point of logistics advantage for the U.S. To approach this problem under the assumption that our adversary already has the means to fire upon key bases like Andersen AFB, the strategy of U.S. forces may be to disburse operations across the region.

## **1.2 Research Problem**

Distributed operations in a contested environment poses new challenges in the way logistics support operations will be able to conduct business. Spreading resources across a wide area at numerous smaller locations will require an accommodating logistics supply line and support personnel. In looking to capitalize on the KSAs of airmen in these support roles, this research examines what the Multi-Capable Airmen (MCA) concept would require of Air Transportation personnel. It is currently unknown which tasks Air Transportation personnel would have to train other career fields on, and it is also unknown which outside tasks Air Transportation personnel would have to be trained on in order to be effective in the adaptive basing environment. Bolstering the ability of our forces to project power from a smaller logistical footprint is foundational to the adaptive basing concept.

## **1.3 Research Questions**

This research seeks to address two overarching research questions.

1. What skills, duties, or tasks should be considered to be a part of a 2T2 led training program for other AFSC airmen to best enhance mission capabilities as Multi-Capable Airmen?
2. What other career fields do 2T2 airmen have experience assisting with in duties and responsibilities so as to identify which areas might be most feasible to include in a Multi-Capable Airmen training program for Air Transportation personnel?

#### **1.4 Investigative Questions**

The research questions will be addressed by the following investigative questions.

1. What KSAs, job duties and responsibilities are considered most essential within the 2T2 career field?
2. What job duties and responsibilities are considered most essential for the 2T2 career field given the constraints presented in a contested environment in a disbursed operations scenario?
3. What duties and responsibilities within the Air Transportation career field are deemed to be too critical and/or specialized to be considered for the MCA program?
4. What occupations have 2T2 personnel assisted with or what duties have they performed (outside of their own career field core competencies)?

#### **1.5 Research Objectives**

Objective 1: Employ a Classical Delphi Study to survey experts within the Air Transportation career field and obtain their opinions to glean insights from their experiences and knowledge to inform this research concerning the Multi-Capable Airman concept.

Objective 2: Analyze the survey information to determine what skills and duties should be included in a 2T2 led Multi-Capable Airman training program and in addition explore the

experiences of the expert panel in an effort to learn where there might be opportunities for 2T2 airmen to expand their efforts in contributing to the airlift mission outside of their core AFSC.

## 1.6 Methodology

The methodology for this research involved a Classic Delphi Study in which the opinions, inputs, and the ultimate consensus of an expert panel determined the best fit duties to include in an Air Transportation led MCA training program. The panel responses were also utilized to identify what AFSC's outside of the air transportation career field might best align with the MCA concept for 2T2 airman to potentially assist with.

The Delphi method was invented by Olaf Helmer and Norman Dalkey of the Rand Corporation in the 1950s for the purpose of addressing a specific military problem. The method relies on the key assumption that forecasts from a group are generally more accurate than those from individuals (Hyndman & Athanasopoulos, 2021).

A depiction of the method's procedure is displayed in Figure 1, beginning with the initial preparation phase.

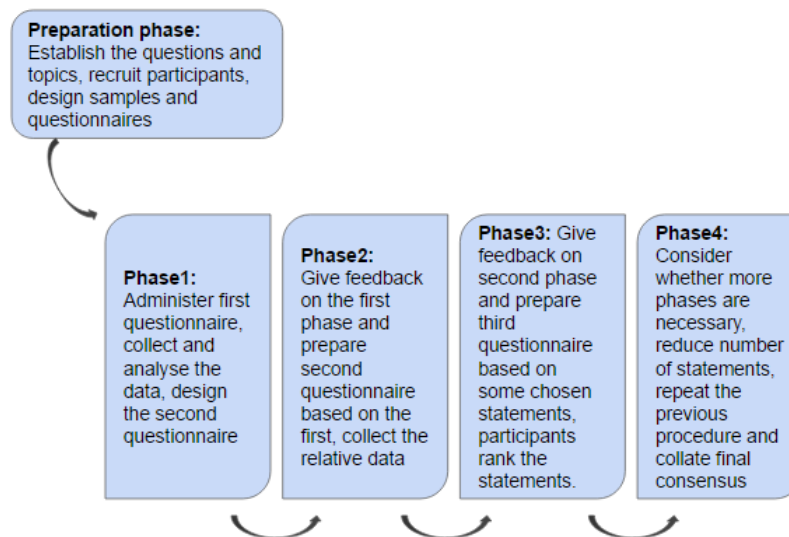


Figure 1: Classic Delphi Method (Ronzoni, 2018)

This phase includes the development of the questions, which in this case, focused on determining which possible tasks or duties Aerial Port personnel might be able to complete outside of their core AFSC and what skills and tasks might be most useful/feasible to include in a 2T2 led training program.

A total of three surveys was conducted with experts in the Air Transportation community. In working to find a consensus position, questions were presented to members of the expert panel, which ascertained the responses on the skills and abilities that would most feasibly fit into an Air Transportation led multi-capable airman training program. Through the iterative process of conducting rounds of questioning each subsequent round is fed by its predecessor and in-turn informs to research. Rounds were conducted until a satisfactory level of consensus was reached.

A key factor in the Delphi Method study is not only the collection of the data, but also the coding and analysis of the qualitative information so as to develop it into a quantifiable metric in order to determine consensus amongst the group.

The original Delphi study set forth several key features of the method, specifically the use of a purposively selected panel of experts to achieve consensus on a particular issue or question over multiple survey rounds (Fletcher et al., 2014). The aim of the Delphi method is to construct consensus forecasts from a group of experts in a structured iterative manner (Hyndman & Athanasopoulos, 2021). Delbecq, Van de Ven, and Gustafson (1975, 11) specifically indicate that the Delphi technique can be used for achieving the following objectives:

1. To determine or develop a range of possible program alternatives;
2. To explore or expose underlying assumptions or information leading to different judgments;

3. To seek out information which may generate a consensus on the part of the respondent group;
4. To correlate informed judgments on a topic spanning a wide range of disciplines, and;
5. To educate the respondent group as to the diverse and interrelated aspects of the topic.

## **1.7 Assumptions and Limitations**

A significant assumption in this research is the fact that war in the Pacific Theatre is not necessarily imminent. More so, investing in additional training and likewise, expecting more from an already overworked force may prove to be detrimental to morale and or desire. The idea of MCA is predicated on the fact that the next war will be with a near-peer competitor and will take place in a highly contested environment at a distance far reaching from the shores of the continental United States.

There was also an assumption that with the anonymity of the panelists the concept of bias would largely unaffected the study. Measures were taken to craft survey questions in an effort to limit the potential for instrumentation and response bias.

Additionally, there were also a number of limitations encountered in developing and implementing this Classical Delphi Study:

- A major limitation in this study dealt with Air Force network Access issues. The Google Survey website could not be accessed from Air Force network computers. As a work-around, the researcher had to build the surveys off the military network. The respondents were able to receive the survey link via their Air Force emails, however, they had to open and complete the surveys on their personal computers or smart phone devices.
- Timely collection of results from all participants is largely outside the control of the researcher

- Differing variables, such as time limitations, interest, motivation, technology skills, and access might have impacted any participant's experience during the study, thus limiting the validity of the results (Johnson, 2020)
- The small sample size of 11 respondents and sample criterion limited the ability to generalize to the larger population of 2T2 Experts
- While a minimum rank (MSgt) was set in an effort to maintain a certain level of experience and knowledge on the expert panel, there was no way to assess the level of expertise and contextual field experiences of the expert panel without adding another level of survey at the onset of the study.

Another limitation of the Delphi Study itself was that the process was not conducted in a face to face manner. While this also poses as a positive for this particular type of study, it may be less fruitful for the researcher who may have been able to garner richer information from the respondents if given the opportunity to conduct in-person interviews. The Delphi study does rely on anonymity and communication from the researcher to the panelists to that end. However, it did prove to be very useful to employ email, and text messages as the primary means of communication. Linstone and Turoff on the other hand, had argued that the employment and use of computers outweighed the face-to-face interviews method citing time management and allowing for more iterations as the reasoning. The difficulty with the Delphi process conducted in face-to-face conferences or by mail is that the turn -around (sending and receiving mailings plus processing of the data and preparing each round for the panelists) can be very time-consuming, resulting in a loss of initiative and focus. Adding computer capability makes it possible to cut turn-around time to a minimum, thus; permitting the introduction of many more iterations and more material per iteration (Linstone and Turoff, 2002).

## **II. Literature Review**

### **2.1 Anti-Access/Area (A2/AD) Denial Environment**

In recent years U.S. Forces have been transitioning military operations focus from a nearly constant, robust line of logistics over an extended land base to a severely more contested environment. This in turn poses new challenges to include limited land resource for operations amongst islands in competition with a near-peer competitor. “The Department of Defense (DOD) can no longer rely on established forward bases and uncontested lines of supply... The geographic and cultural challenges of the Indo-Pacific AOR strain current DOD logistics practices.” (Myers et al., 2021). USAF aerial port capabilities have been supported through large bases with infrastructure, material handling equipment (MHE), and storage, enabling the servicing of an extended area of operations. While that method of supporting logistics may have worked in the Middle East, the idea that the United States will be able to conduct similar operations in the Indo-Pacific region is potentially flawed. Christensen (2017) presented a means for re-aligning our basing methods. The “Untethered Operations” concept was formed to break out of the U.S. Air Force’s decades old paradigm of fighting from a well-established or, at a minimum, a well-resourced air base. The air base was looked at as a weapons system in and of itself, and assumed a large degree of force protection and impunity from attack (Christensen, 2017). This concept lies nested in a larger war strategy known as Agile Combat Employment (ACE).

The Peoples Republic of China (PRC) has increased its ability to defend its homeland, evidenced by the graphic in Figure 1 displaying its regional missile threats. US assets within the missile ranges of Figure 1 would be at risk during conflict. Examples of area denial capabilities include integrated air defense systems (air and surface-based systems, both fixed and mobile),

cruise and ballistic missiles, anti-ship missiles, anti-armor systems, longer-range man-portable air defense systems, precision-guided munitions, autonomous weapon systems, unmanned aircraft and underwater vehicles, and swarm tactics (Lawrence, 2021). PRC's ability to strike U.S. military assets in the Indo-Pacific region is a concern for logistics planning. A key element of disbursed operations calls for agility and flexibility in the context of projecting air power in the region. This principle of flexibility and the ability to quickly and effectively shift sortie generation operations to alternate airfields enables the principle of persistence (Christensen, 2017).

In a conflict with a superpower adversary, attacks on the United States logistics supply chain is a reasonable assumption. Air Mobility forces have been historically reliant upon the ability to produce sortie generation from established bases with robust support infrastructure. In a distributed operations environment, basing will be smaller, support teams numbers will be limited and there may not always be developed infrastructure in place. US military forces have been war gaming and working through these problem sets in an effort to maximize the ability to project power in the region. This highlights the importance of having multi-capable airmen on the ground ready to support airlift through sortie generation.

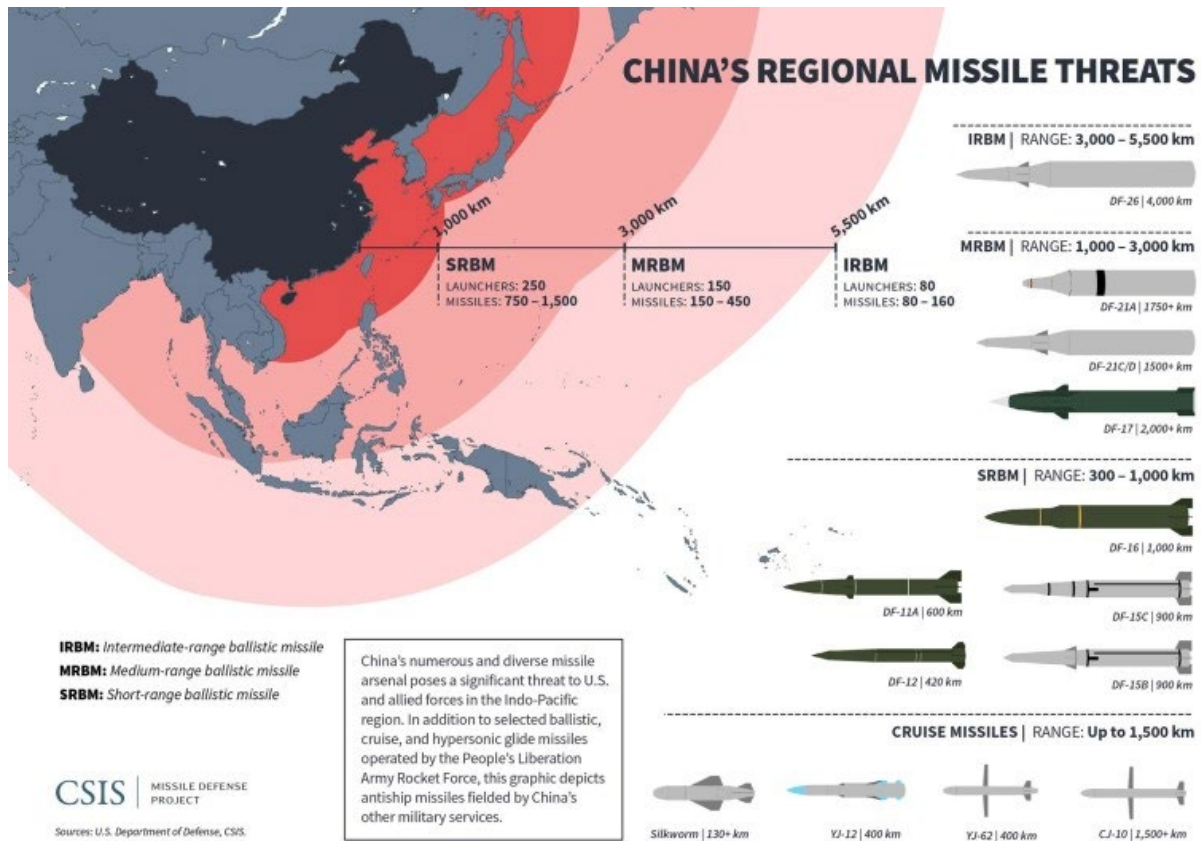


Figure 1, <https://missilethreat.csis.org/country/china/>

**Figure 2: Chinese Missile Threat Crisis (Missile Defense Project; 2021)**

The scale and scope of the A2AD environment can yield a number of setbacks to the logistics supply chain and operations. Impeding US sealift freedom of action by under/above sea attack, striking US airfields to disrupt strategic airlift, interdicting overseas US petroleum storage-handling sites, and conducting cyberspace counter logistics attacks in US home zip codes are but a handful of actions A2/AD adversaries can undertake to degrade US forces (Alcazar, 2012) In an effort to adapt United States strategy for basing, planning is continually evolving into the concept of distributed operations as a way to disperse U.S. forces, lessen risk to personnel and assets, and provide combat power to the conflict from a multitude of areas.

## **2.2 Agile Combat Employment (ACE) & Distributed Operations**

Basing is essential to project airpower across the globe. Senior Air Force leaders acknowledged the importance of airbases for projecting airpower anywhere on the globe (Croslen, et al., 2005). As a form of risk-mitigation, the U.S. is exploring the application and use of ACE as it works through the various challenges presented by the Indo-Pacific region. ACE seeks to counter the threat that dominant global powers like China and Russia pose to American force projection by shifting from large, established air bases to smaller, rapidly deployable, temporary airstrips manned by skeleton crews (prnnewswire.com, 2021).

The 2018 National Defense Strategy highlights the need to transition from large, centralized, unhardened infrastructure to small, dispersed, resilient, adaptive basing. The strategy supports the ACE concept. The ACE concept of operations was a topic of discussion at senior levels. U.S. Indo-Pacific Command officials incorporated some contested mobility challenges into war games. The 2019 Pacific Sentry series of war-games simulated attacks on mobility aircraft and sealift ships that were transporting replenishment resources to combat forces (GAO, 2021:19).

Within ACE lies the concept of distributed operations in which US military operations are dispersed across a large area as small, highly effective units. Operating from a larger number of air bases provides protection by increasing the number of targets that the adversary would need to attack for an equivalent reduction in U.S. air operations (Priebe et al., 2019). In this high end fight it is imperative that air mobility continuously generate sorties. Developing smaller footprints will offer the U.S. an advantage in disbursing resources and manpower to many bases of operations. In addition to developing numerous locations to serve as attack vantage points, this strategy also lowers the risk of losing high value assets with merely one or two strikes from

an adversary.

While this concept serves to solve one problem set, it also comes with its own challenges. The concept of spreading resources and personnel across a large area will require a robust logistics support chain for ground operations and sustainment. The contested environment will force the USAF to trade efficiency for survivability. If the USAF pursues distributed operations, it will need more resources to support a greater number of operating locations and enable distributed control (Priebe et al., 2019). Support personnel may find themselves in smaller teams at these various locations. This drives the necessity for multi-capable airmen in ground support AFSC's. A foundational resource in combat power is logistics and the men and women who support that mission. In the USAF, one such entity would be Logistics Readiness Squadrons and, in-turn, Air Transportation personnel.

### **2.3 Aerial Port Operations**

The Air Transportation career field is responsible for elements of ground support in handling cargo and passengers for military airlift. The Career Field Education and Training Plan (CFETP) lists the specialty description as: Providing installation readiness training (cargo preparation, aircraft loading/offloading, hazardous material preparation, passenger processing, etc.) and unilateral aircrew training (Dept. of the Air Force, 2021). The value of this career field has been highlighted numerous times throughout the last two decades in supporting the efforts of U.S. operations in the Middle East region. Contributing and supporting the logistical lines of effort in sustaining the force is inherent within the responsibilities and duties of Air Transportation personnel. Aerial port operations are extremely complex and require aerial porters to be trained and knowledgeable in multiple highly technical functions (Ahlf, 2018). In the scenario of a major conflict, the U.S. will have the option of calling upon military airlift to

serve as the backbone for rapid deployment of cargo and personnel. In the event of rapid deployment of assets, the 2T2 community is an essential element in delivering and sustaining the flow of resources and personnel into the region. Supply and logistics in a forward deployed location is to bolster the logistics footprint in support of U.S. military objectives. While the men and women of this career field have honed their skills in the Middle-East conflicts disbursed operations will certainly present new, unique challenges. Aerial Port personnel may be placed in locations with the potential for situations of having minimal amounts of personnel and resources. The idea of disbursed operations in a contested environment was discussed in a [defensenews.com](#) article: ACE is an operational concept that leverages networks of well-established and austere air bases, multi-capable airmen, pre-positioned equipment, and airlift to rapidly deploy, disperse and maneuver combat capability throughout a theater (Adamson et al., 2020).

A typical day for aerial port personnel may rest in any number of positions within the flight or squadron. The typical unit is separated into distinct section within different capabilities, all dependent on each other for overall mission success. The sections that make up an aerial port each require special knowledge, skills, and abilities (KSAs). For a 7-level member, these include:

- passenger processing procedures
- cargo movement and processing
- border clearance requirements
- airlift transportation directives and documentation
- functions to include transport aircraft types, capabilities, and configurations
- cargo securing techniques



**Figure 3: Illustration of Cargo Pallet Loading (Turner; 2010)**

- operation of material handling and other types of loading equipment or devices



**Figure 4: Illustration of New Generation Small Loader (Celestine; 2011)**

- automated data processing equipment and its application in airlift activities



**Figure 5: Cargo Weight and Processing (Simmons; 2006)**

- passenger service functions and customer relations principles
- Unilateral Aircrew Training techniques and equipment
- weight and balance factoring

There are also a number of initiatives developing within the career field that may lead to an opportunity for the introduction and relevant use of MCA capabilities. Air Distribution Enterprise Next (ADEN) is an aggressive modernization effort that will rapidly transform the Air Transportation culture, capabilities, workforce, infrastructure, processes, and stakeholder management (Knight, 2020). The MCA concept could prove to be a value-added resource to an already evolving AFSC.

## 2.4 Air Transportation (2T2) Competencies

The Career Development Path chart (Figure 7) displays the core competencies associated with the Air Transportation career field. In applying the MCA concept this particular AFSC our aim is to determine what jobs, duties, and tasks might 2T2 airmen potentially be able to assist with that are outside of the skills listed here.

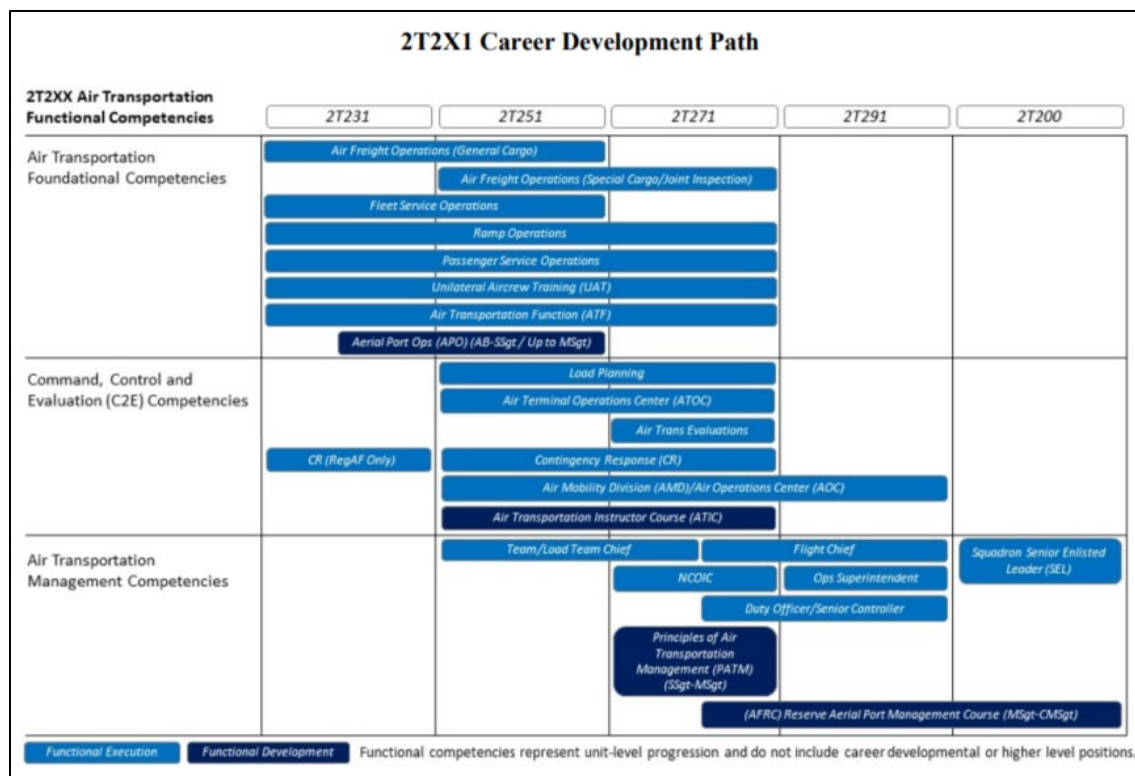


Figure 6: Air Transportation (2T2) Competencies (CFETP, 2021)

## 2.5 Multi-Capable Airmen

The Air Force Chief of Staff, General Charles Q. Brown, published a set of action orders that centered around the idea “accelerate change or lose.” As a part of that message, he charged the USAF in its entirety to work to empowering airmen to solve problems. “Our Airmen must be multi-capable and adaptable team builders, as well as innovative and courageous problem solvers, and demonstrate value in the diversity of thought, ingenuity, and initiative.” (Brown,

2020:6)

As our adversaries continue to gain in military power and develop capabilities to wage conflict, our airmen must evolve in the tactics and techniques they use to generate airpower. The concept of MCA is a step in the right direction to giving our airmen the KSAs they need to become even more agile in contributing to mission success. Finally, the Air Force must broaden its training to create multi-capable airmen. Due to finite capacity to rapidly shift support personnel worldwide, the Air Force is training airmen to take on roles outside of their traditional jobs. This effort reduces the logistics tail required to project combat power (Adamson et al., 2020).

The need to develop U.S. MCA capabilities is important due to the fact that it will be employed in a contested environment against a global superpower. USAF Contingency Response Wings (CRW) are a great example of how multiskilled airmen can add value to lean logistics unit in terms of rapid response. Likewise, individual bases can be set up quickly today (in a day or two to reach Initial Operating Capacity), but such agile operations would need to be carried out by highly skilled, multiskilled, and practiced personnel from Contingency Response Groups (CRGs), and even those units would have the benefit of weeks to months of advance planning for such quick operations (Mills et al., 2019). USAF ground support forces will also need to ensure that they are able to complete their core individual assignments and task, but the reality may be that they could be called upon to fill gaps where their colleague airmen cannot meet mission demands. This idea of developing airmen with multiple skills would also entail implementation of training and preparation to develop their practical knowledge and skillsets. In an interview during the 2021 Cope North exercise, U.S. Air Force Col. Jared Hutchinson, exercise director and 35th Operations Group commander at Misawa Air Base, Japan stated the

following on the MCA concept “if an individual is responsible for completing a task and is unable to do so, it’s very important that the person to his left or right is trained and able to complete the task at hand,” he said. “When you’re on the road, it’s nice to be able to help your counterparts and it can become necessary for you to fill their shoes if something unexpected were to happen” (Valdes, 2021).

Given the fact that the idea of MCA is relatively new concept, the USAF has yet to outline what AFSC’s can merge in duties to better define the model in operations. Although, there does seem to be efforts to explore and exercise the MCA concept at the unit and Wing levels. Airmen at Luke Air Force Base were highlighted in an AF.mil article outlining men and women of the 56th Mission Support Group conducting an ACE MCA exercise. In an interview regarding the MCA exercise, U.S. Air Force Col. Anthony J. “Rev” Mullinax, 56th Mission Support Group commander commented:

The idea behind ACE is to train Multi-Capable Airmen (MCA) that may forward deploy to future Air Base squadrons supporting lead wings in a high-end fight against adversaries like China. The Airmen must be able to execute multiple air force specialties at a minimum level of proficiency in an agile combat environment. With ACE and MCA, Airmen will form a ‘team of teams’ learning capabilities enabling contingency locations to rapidly turn combat aircraft while concurrently defending their fighting position against our adversaries (Busby, 2022).

Similarly, an expert panel member from the 153d Airlift Wing in Cheyenne, Wyoming had detailed some of the efforts at his unit in exploring the cross training of their Air Transportation personnel and other members from differing AFSC’s within the Logistics Readiness Squadron. In his response to any experience he may have had with training airman outside of the 2T2 career field he stated,” We have had successful experiences training non 2T2’s on MHE and loading operations...”

### **III. Methodology**

#### **Overview**

For this study, the Classical Delphi Method, a study that utilizes both qualitative and quantitative methods of research, was used. This research involved a need for determining the most essential air transportation skills for an MCA program and what potential duties or tasks could be combined with a 2T2's current skills to best enhance airlift mission generation through the MCA concept and ACE. In following the Classical Delphi Method, surveys were used in order to garner educational air transportation leadership experts' perspectives.

The Delphi method calls for the collection, analysis, and organization of data from a panel of experts on a specific topic in an effort to yield group consensus. The Delphi technique is well suited as a method for consensus-building by using a series of questionnaires delivered using multiple iterations to collect data from a panel of selected subjects (Hsu & Stanford, 2007).

The underlying premise of the MCA concept is not new in itself. The USAF has had programs based on a multiskilled workforce in the past. However, at this point determining what jobs can employ this concept is a matter relatively still in its infancy stages as we progress towards changing our techniques of employing war fighters. According to Thompson, a Classical Delphi study tends to be employed where established theory or knowledge are lacking but where 'experts' are thought to hold relevant information (Thompson, 2009). The Delphi Method was chosen based on the ability to collect and analyze information from an expert panel in an effort to inform the research.

A useful alternative to face-to-face interviews, the Classical Delphi method allows for the gathering of information through a variety of other means, such as mail, e-mail, or telephone (Linstone & Turoff, 2002). The fact that email was the primary mode of communication and dissemination of the surveys was beneficial in controlling certain potential negative aspects such

as groupthink phenomenon or the halo effect bias, where individuals are inclined to follow a perceived influencer's opinion. This along with not knowing who the other experts are on the panel are some of the key highlights of the benefits of this method of research. We are interested in ensuring that the responses from each of the panel experts is unaffected from outside influence. Anonymity of Delphi participants allows the participants to freely express their opinions without undue social pressures to conform from others in the group. Decisions are evaluated on their merit, rather than who has proposed the idea (Skulmoski, Hartman & Krahn, 2007).

The Delphi technique is a quantitative option aimed at generating consensus. It solicits opinions from groups in an iterative process of answering questions. After each round the responses are summarised and redistributed for discussion in the next round. Through a process of convergence involving the identification of common trends and inspection of outliers, a consensus is reached (betterevaluation, 2014). In processing the responses gathered from the surveys, the data was gathered and analyzed with Qualitative Data Software. This initiates the process of conducting several rounds of surveys until a final consensus is reached. The Round 3 consensus is validated by using a nonparametric statistic called Kendall's coefficient of concordance, or Kendall's W.

### **Classic Delphi Study Flow**

The flow of the Classic Delphi study is highlighted here in Figure 7. The initial steps involved garnering support from potential panel members that may be willing to participate in the study. Once a group of individuals are brought on to serve on the expert panel, the first round of surveys can be sent.

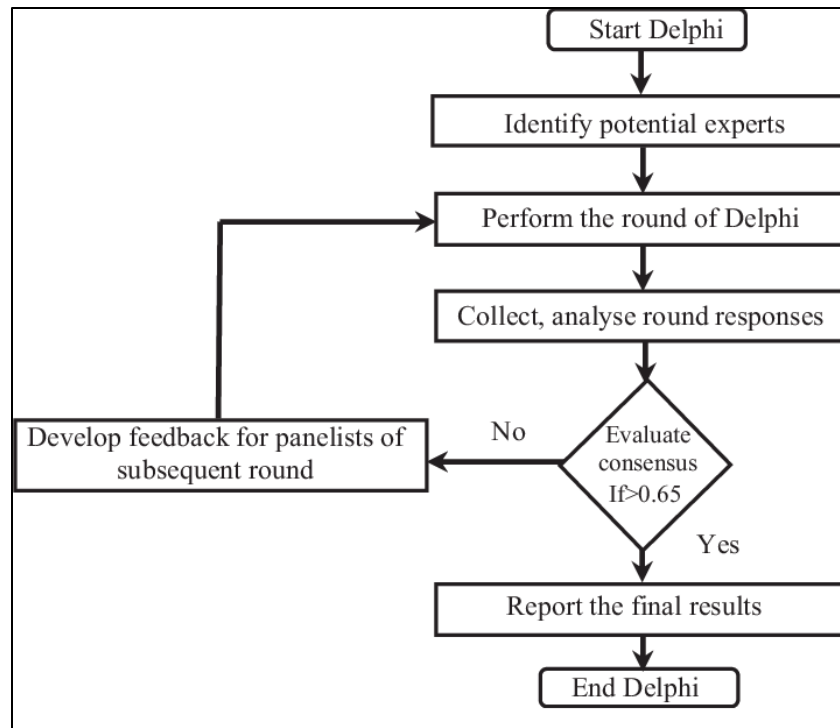


**Figure 7: The Classic Delphi Technique Diagram (Alaloul et al., 2016)**

The following steps were taken in employing the Classic Delphi Method for this research. It is important to note that every Delphi Method is somewhat unique in its approach as different objectives drive different questions and can be adjusted to meet the intent of the research.

- A panel of experts was assembled.
- Forecasting tasks/challenges were set and distributed to the experts.
- Experts returned initial forecasts and justifications. These were compiled and summarized in order to provide feedback.
- Feedback was provided to the experts, who reviewed their forecasts based on analyses of the responses from the prior round. This step was iterated until a satisfactory level of consensus was reached.

This Classical Delphi study's purpose was to determine a list of perceived most essential

skills needed by air transportation personnel and most feasible other career duties to provide assistance to as Multi-Capable Airmen by accessing the perspectives of a panel of qualified leadership experts based on their expertise gained from work in the field.

## Experts

Expert panel members must have attained at a minimum the rank of E-7, Master Sergeant, in the USAF Air Transportation career field. Panel members were sought out from various states across the U.S. All panel members were asked of their willingness to participate in the study through a letter (Appendix A), which covered the research as well as the study procedures that would be conducted through surveys. In total, 11 Air Transportation personnel participated in this study serving as expert panel members. Similar to other survey type studies, this research experienced a certain level of attrition as 4 respondents who committed early on did not make it through to the end. Any information or data they submitted was not included in the study.

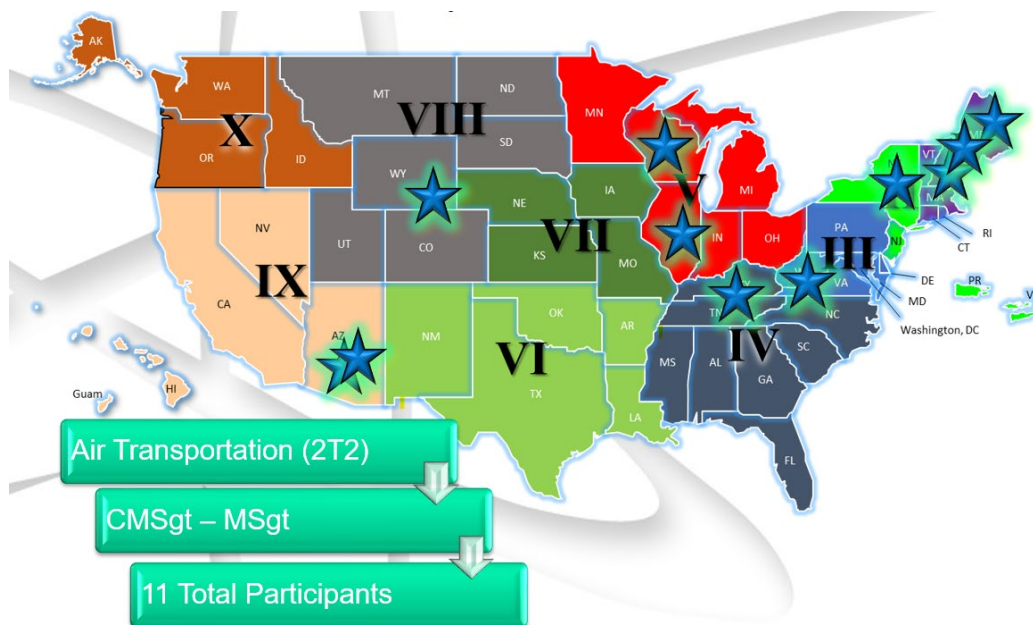


**Figure 8: Expert Panel Base Locations Map**

## **Instrumentation**

The instrumentation developed for this study included e-mail communications and a series of surveys created using Adobe PDF and Google forms (Appendices C-H), a web-based survey administration software. Surveys were developed and administered for each round as part of the Delphi study process. Upon acceptance to the expert panel and serving as a respondent, each participant agreed to the survey process to include a minimum total of 3 rounds and a commitment to adhere to the study until a group consensus was reached. For each of the 3 rounds, this study used the instruments Johnson (2020) utilized as a guide for formatting and structure.

### **Round 1 Survey**

All participants were given instructions through an email message (Appendix B) and sent the survey for round 1 (Appendix C). This first survey was developed as an Adobe PDF document and was constructed in an open-comment answer format that queried the expert panel for their opinions to questions concerning air transportation subject matter. This round was essential as it served to produce the foundational information for the study. Upon receiving all surveys from this round, the researcher was able to aggregate the information and begin the initial data analysis portion. Qualitative Analysis Software from NVivo was used as a means to code the survey response data into quantifiable information. *Coding* involves labeling passages of text according to content, and *retrieving* is providing a means to collect similarly labeled passages (Merriam, 2011: 194). The researcher evaluated every respondent's comments and analyzed each of them for central skill themes for the Air Transportation career field. A total of 8 questions were sent in the Round 1 Survey (Tables 1-8). This round was essential in

establishing a foundation of rich information used to inform Rounds 2 and 3. Collectively, the questions targeted useful information to help answer the research and investigate questions.

## **Round 2 Survey**

The information garnered from the Round 1 survey was used to develop the questions for this Round. While there were 8 questions in total for Round 1, Round 2 consisted of only 4 questions which were developed by the researcher as the means to best inform the study. The expert panel members were notified of the Round 2 Survey via email (Appendix D). The respondents were asked to rate the skills listed within each question using a 5-point Likert scale format to determine the level of importance of the items listed. The scale had the following as a response choice for each skill listed: 1 = *unimportant*, 2 = *somewhat important*, 3 = *important*, 4 = *very important*, and 5 = *essential*. The Likert scale was developed using Google Forms to produce the electronic-format for the Round 2 survey (Appendix E). The questions presented to the respondents were:

- If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities would be in relation to assistance with air transportation personnel functions.
- If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important it would be to exclude the following skills and capabilities given the certifications, specialties and nuances associates with the following tasks/duties.
- Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.

- If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.

Once the Round 2 survey responses were all submitted, the researcher analyzed and quantified the data in order to develop and refine the content for the survey for Round 3.

### **Round 3 Survey**

For Round 3, the panel of Air Transportation experts were sent the final email notification and survey link. This final round survey was developed in an electronic format through Google Forms, similar to Round 2. They were asked to review the Round 2 rankings based on frequency of selected rank and mean value of the identified key skills; to re-rank these skills in order of priority. The panel was able to review the Likert scale results of the identified skills from Round 2 within the Round 3 survey layout. They were also given the opportunity to add comments for their rankings and any additional information they wanted to share concerning the MCA program for Air Transportation. The questions presented to the respondents were:

- If the USAF were to develop an MCA program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities based on their potential usefulness with air transportation personnel function support.
- Given the scenario of disbursed operations creating smaller separated logistics footprints and along with it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.
- If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rank which of these duties should be excluded

from the program.

- If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.

In-line with the Classical Delphi Study method, the ultimate goal of this research is to reach a consensus amongst the group in order to answer the research questions. Round 3 was employed to that end, in that it was used to further refine and the list of skills outlined in the questions in order to reach a consensus for each question. In a Delphi Study, if a consensus had not been reached, an additional round would have been necessary. The Delphi rounds of surveys would have had to continue until a level of consensus was reached or until it was determined that no new information was gained. In this instance, the researcher is aiming to reach a level of consensus for each question presented to the expert panel.

## **IV. Analysis and Results**

### **4.1 Overview**

This chapter covers the detailed information regarding the qualitative and quantitative data collected through the 3 survey rounds. Round 1 was developed using a PDF form as an open comment survey and Rounds 2 and 3 were developed as a Google Form survey and sent to the panel of experts via an electronic survey link. The data collected from the surveys (Appendix E-G) for this Classic Delphi Study was analyzed at the end of each individual round. The results from each round were used to develop the questions for the next rounds of surveys. The iterative process was employed in order to reach a level of consensus for each question presented in Rounds 2 and 3. The process consisted of developing surveys, employing experts, collecting responses, analyzing data, and building tables, which was both arduous and time consuming.

The Delphi technique can also be time-consuming and laborious. Unlike other data collection techniques such as the telephone survey and the face-to-face administration, which can be simultaneously conducted by a group of people and can be completed in a short period of time if the sample size is small, the Delphi technique is iterative and sequential (Hsu and Stanford, 2007).

Nonetheless, this method proved to be useful in consideration of the qualitative data that was required to be collected at the onset of the study. It was important to develop the tables in an effort to organize the data and ensure the iterative process was utilized to inform each subsequent round.

### **4.2 Delphi Study Round 1 Data Collection**

In Round 1 of this Delphi Study, the 11 Air Transportation experts were asked to respond to a total of 8 questions via a PDF document. The survey (Appendix C) gave each respondent

the opportunity to freely comment on each question in an effort to elicit detailed and immersive responses. Careful attention and care was given in reviewing and evaluating the so as to identify Survey Round 1 themes and patterns necessary to organize the data to develop the Round 2 survey (Appendix E). Utilizing the Qualitative Data Analysis software from NVivo enabled the researcher to code the survey responses for measurement of data frequency. This process resulted in quantitative information being derived from the qualitative data pulled from the survey.

Once the comments were received, reviewed and analyzed the process of coding began. This is the process of some sort of shorthand designation to various aspects of the data, which leads to identifying segments that are responsive to your research (Merriam, 2011:173-177). Tables were produced for Round 1, which illustrate the coding results that were developed. Source indicates the number of respondents who mentioned the listed skill and the Frequency is the number of times the skills were mentioned in total.

## 4.3 Round 1 Survey Questions

### 4.3.1 Round 1 - Question 1

Table 1: Round 1 Survey - Question 1

Q1: *In your experience, what do you feel are the most critical skills you have attained as a USAF air transportation 2T2?*

| Skills                                                                        | Source | Frequency |
|-------------------------------------------------------------------------------|--------|-----------|
| Ability to safely load/unload cargo on an aircraft (approach, load, tie-down) | 10     | 16        |
| Pallet/Cargo Build-Up & Processing                                            | 9      | 12        |
| Ability to operate MHE (10K AT Forklift/25K Halvorsen)                        | 9      | 11        |
| Load Planning                                                                 | 6      | 8         |
| Special Handling (hazardous material)                                         | 6      | 7         |
| Joint Inspection (JI, JAI)                                                    | 6      | 6         |
| Passenger Processing (certify IAW Regs, manifest, inspect, transport)         | 6      | 6         |
| Air Terminal Operations Center (ATOC)                                         | 5      | 6         |

#### 4.3.2 Round 1 – Question 2

**Table 2: Round 1 Survey - Question 2**

*Q2: In your own experience, in dealing with other AFSCs on the flight line or any other capacity as a 2T2, what if any duties (outside of 2T2 duties) have you critically observed and/or assisted with?*

| Skills                                        | Source | Frequency |
|-----------------------------------------------|--------|-----------|
| Assistance to aircraft load masters           | 7      | 10        |
| Assistance to ground transportation           | 6      | 9         |
| Assistance to maintenance                     | 6      | 8         |
| Assistance as security                        | 6      | 8         |
| Assistance to POL (fuels)                     | 4      | 6         |
| Assistance to Traffic Management Office (TMO) | 3      | 5         |
| Assistance to airfield management             | 2      | 4         |
| Assistance to Inspector General staff         | 2      | 3         |

#### 4.3.3 Round 1 – Question 3

**Table 3: Round 1 Survey - Question 3**

*Q3: Do you currently operate/participate in a MCA program (formal or informal) in your unit or Wing? If so, what are the strengths and weaknesses of the formal or informal program?*

| Skills                                                                      | Source | Frequency |
|-----------------------------------------------------------------------------|--------|-----------|
| No MCA Program                                                              | 6      | 6         |
| Assistance to 2T2s with cargo pallet build up                               | 5      | 8         |
| Assistance to 2T2s with Cargo Deployment and Passenger Deployment Functions | 5      | 7         |
| Assistance to 2T2s with air craft loading (chalking, tie down, etc.)        | 5      | 6         |
| Assistance to 2T2s with Air Drop Recovery                                   | 2      | 2         |
| 2T2s assistance to TMO                                                      | 6      | 7         |
| 2T2s assistance to Vehicle Ops                                              | 6      | 6         |
| 2T2s assistance to Ground Transportation                                    | 5      | 6         |

#### 4.3.4 Round 1 – Question 4

**Table 4: Round 1 Survey - Question 4**

*Q4: Have you had experience in training airmen from outside of your air transportation flight/squadron (other AFSCs)? If so, describe the scenario and players involved.*

| Skills                                                                         | Source | Frequency |
|--------------------------------------------------------------------------------|--------|-----------|
| Pallet/Cargo Build-Up                                                          | 10     | 17        |
| MHE Training (10 AT, Standard 10K, Halvorsen)                                  | 10     | 15        |
| Assistance in safe load/unload of cargo on aircraft (approach, load, tie-down) | 8      | 10        |
| Cargo Processing                                                               | 7      | 8         |
| Passenger Processing (certify IAW Regs, manifest, inspect, transport)          | 6      | 6         |
| Global Air Transportation Execution System (GATES)                             | 2      | 2         |
| Load Planning (ICODES)                                                         | 1      | 1         |

#### 4.3.5 Round 1 – Question 5

**Table 5: Round 1 Survey - Question 5**

*Q5: Considering that there is a certain level of critical expertise and experience needed to successfully complete some Air Transportation AFSC duties, what 2T2 skills, in your opinion, would be most useful/feasible to add into a training program for other AFSCs learn to best enhance mission capabilities under the MCA concept?*

| Skills                                                                            | Source | Frequency |
|-----------------------------------------------------------------------------------|--------|-----------|
| Ability to operate MHE (10K AT Forklift, Standard 10K, Large Trucks, Gen purpose) | 10     | 16        |
| Pallet/Cargo Build-Up & Processing                                                | 10     | 14        |
| Ability to safely load/unload cargo on an aircraft (approach, load, tie-down)     | 7      | 8         |
| Passenger Processing (certify IAW Regs, manifest, inspect, transport)             | 4      | 5         |
| Global Air Transportation Execution System (GATES)                                | 3      | 4         |

#### 4.3.6 Round 1 – Question 6

**Table 6: Round 1 Survey - Question 6**

*Q6: Considering that there is a certain level of critical expertise and experience needed to successfully complete some Air Transportation AFSC duties, what 2T2 skills, in your opinion, would be outside the realistic scope of adding into a training program for other AFSCs learn and execute?*

| Skills                                 | Source | Frequency |
|----------------------------------------|--------|-----------|
| Joint Inspection (JI, JAI)             | 7      | 8         |
| Load Planning (ICODES)                 | 7      | 7         |
| Special Handling (hazardous material)  | 6      | 7         |
| Air Terminal Operations Center (ATOC)  | 3      | 4         |
| Loaders (NGSL "Halverson", 60K Tunner) | 3      | 3         |
| GATES                                  | 2      | 3         |
| Cargo Manifesting                      | 2      | 2         |

#### 4.3.7 Round 1 – Question 7

**Table 7: Round 1 Survey - Question 7**

*Q7: Given the scenario of a war time environment in a highly contested battle, what do you believe would be the utmost essential duties of air transportation personnel?*

| Skills                                                                        | Source | Frequency |
|-------------------------------------------------------------------------------|--------|-----------|
| Ability to safely load/unload cargo on an aircraft (approach, load, tie-down) | 8      | 9         |
| Ability to operate MHE (10K AT Forklift/25K Halvorsen)                        | 7      | 7         |
| Pallet/Cargo Build-Up & Processing                                            | 5      | 8         |
| Cargo (security)                                                              | 3      | 3         |
| Special Handling (hazardous material)                                         | 2      | 3         |
| Joint Inspection (JI, JAI)                                                    | 2      | 2         |
| Load Planning (ICODES and Center of Balance)                                  | 2      | 2         |

#### 4.3.8 Round 1 – Question 8

Table 8: Round 1 Survey - Question 8

Q8: Given the same scenario of a string of small bases on a chain of islands used for projecting airpower, what ground support operations do you believe are most vital?

| Skills                                                                        | Source | Frequency |
|-------------------------------------------------------------------------------|--------|-----------|
| Ability to safely load/unload cargo on an aircraft (approach, load, tie-down) | 10     | 16        |
| Ability to operate MHE (10K AT Forklift/25K Halvorsen)                        | 8      | 9         |
| Pallet/Cargo Build-Up & Processing                                            | 6      | 8         |
| Passenger Processing (certify IAW Regs, manifest, inspect, transport)         | 4      | 5         |
| Joint Inspection (JI, JAI)                                                    | 1      | 2         |
| Load Planning                                                                 | 1      | 1         |
| Refueling                                                                     | 1      | 1         |
| MX                                                                            | 1      | 1         |

The themes produced were based on the responses from the 11 expert panelists and were utilized to create the questions for the Round 2 Survey. Certain questions within this survey were developed to assist in answering the investigative questions, while others targeted information most relevant to answering the research questions.

In conjunction with offering the ability to code qualitative information through their Qualitative Data Analysis website, NVivo, also has a special feature within their system called Visualize Data. Utilizing this tool, the researcher was able to generate a visual depiction of the expert panel responses from Round 1 in a word cloud format.



What skills, duties, or tasks should be considered to be a part of a 2T2 led training program for other AFSC airmen to best enhance mission capabilities as Multi-Capable Airmen?

What other career fields do 2T2 airmen have experience assisting with in duties and responsibilities so as to identify which areas might be most feasible to include in a Multi-Capable Airmen training program for Air Transportation personnel?

With these research questions in mind, the Round 2 Survey was developed. The respondents were asked to rate the skills listed within each question using a 5-point Likert scale format to determine the level of importance of the items listed. The scale had the following as a response choice for each skill listed: 1 = *unimportant*, 2 = *somewhat important*, 3 = *important*, 4 = *very important*, and 5 = *essential*. The Likert scale was developed using Google Forms to produce the electronic-format for the Round 2 survey (Appendix E).

The following tables display the questions that were presented to the expert panel and the subsequent data generated from the collective responses. Consensus for this research is defined as  $\geq 70\%$  (mean  $\geq 3.5$ ) agreement amongst the panel of experts. The standard deviation (SD) was also included in the analysis of the data. According to Cooksey (2020), the measures of variability (particularly the standard deviation) provide a summary measure that gives an indication of how variable (spread out) a particular sample of scores is. When used in conjunction with a relevant measure of central tendency (particularly the mean), a reasonable yet economical description of a set of data emerges. The data tables for Rounds 2 and 3 were styled and guided by the instruments Johnson (2020) developed in her research.

#### 4.4.1 Round 2 Likert Scale Results

**Table 9: Round 2 Likert Scale Results - Question 1**

| Round 2 - Question 1                                                                                                                                                                                                                                                  |                 |     |                        |     |               |     |                    |     |               |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----|------------------------|-----|---------------|-----|--------------------|-----|---------------|-----|
| <i>If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities would be in relation to assistance with air transportation personnel functions.</i> |                 |     |                        |     |               |     |                    |     |               |     |
| Central Themed Skills                                                                                                                                                                                                                                                 | Unimportant (1) |     | Somewhat Important (2) |     | Important (3) |     | Very Important (4) |     | Essential (5) |     |
|                                                                                                                                                                                                                                                                       | <i>n</i>        | %   | <i>n</i>               | %   | <i>n</i>      | %   | <i>n</i>           | %   | <i>n</i>      | %   |
| Ability to operate MHE (10K AT, STD 10K, Large Trucks, Gen Purpose vehicles)                                                                                                                                                                                          | 0               | 0%  | 0                      | 0%  | 1             | 9%  | 0                  | 0%  | 10            | 91% |
| Ability to assist with cargo pallet build-up & processing                                                                                                                                                                                                             | 1               | 9%  | 0                      | 0%  | 2             | 18% | 0                  | 0%  | 8             | 73% |
| Ability to assist with safely loading/unloading an aircraft (approach, load, tie-down)                                                                                                                                                                                | 1               | 9%  | 0                      | 0%  | 1             | 9%  | 0                  | 0%  | 9             | 82% |
| Ability to assist with processing passengers (certify IAW regulations, manifest, inspect, brief, transport)                                                                                                                                                           | 1               | 9%  | 0                      | 0%  | 4             | 36% | 2                  | 18% | 4             | 36% |
| Ability to learn and assist with the Global Air Transportation Execution System (GATES)                                                                                                                                                                               | 2               | 18% | 2                      | 18% | 4             | 36% | 0                  | 0%  | 3             | 27% |

**Table 10: Round 2 Likert Scale Results - Question 2**

| Round 2 - Question 2                                                                                                                                                                                                                                                                                       |                 |          |                        |          |               |          |                    |          |               |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|------------------------|----------|---------------|----------|--------------------|----------|---------------|----------|
| <i>If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important it would be to exclude the following skills and capabilities given the certifications, specialties and nuances associated with the following tasks/duties.</i> |                 |          |                        |          |               |          |                    |          |               |          |
| <i>Central Themed Skills</i>                                                                                                                                                                                                                                                                               | Unimportant (1) |          | Somewhat Important (2) |          | Important (3) |          | Very Important (4) |          | Essential (5) |          |
|                                                                                                                                                                                                                                                                                                            | <i>n</i>        | <i>%</i> | <i>n</i>               | <i>%</i> | <i>n</i>      | <i>%</i> | <i>n</i>           | <i>%</i> | <i>n</i>      | <i>%</i> |
| Joint Inspection (JI) / Joint Airlift Inspection (JAI)                                                                                                                                                                                                                                                     | 0               | 0%       | 1                      | 9%       | 0             | 0%       | 2                  | 18%      | 8             | 73%      |
| Load Planning (ICODES)                                                                                                                                                                                                                                                                                     | 0               | 0%       | 2                      | 18%      | 0             | 0%       | 3                  | 27%      | 6             | 55%      |
| Special Handling (Hazardous Material Inspection)                                                                                                                                                                                                                                                           | 0               | 0%       | 1                      | 9%       | 0             | 0%       | 1                  | 9%       | 9             | 82%      |
| Air Terminal Operations Functions                                                                                                                                                                                                                                                                          | 0               | 0%       | 2                      | 18%      | 1             | 9%       | 1                  | 9%       | 7             | 64%      |
| Training on specialized loaders (NGSL 25K "Halverson", 60K Tunner)                                                                                                                                                                                                                                         | 0               | 0%       | 1                      | 9%       | 5             | 45%      | 3                  | 27%      | 2             | 18%      |
| Training on GATES                                                                                                                                                                                                                                                                                          | 0               | 0%       | 3                      | 27%      | 6             | 55%      | 0                  | 0%       | 2             | 18%      |
| Training in Cargo Manifesting                                                                                                                                                                                                                                                                              | 0               | 0%       | 3                      | 27%      | 5             | 45%      | 2                  | 18%      | 1             | 9%       |

**Table 11: Round 2 Likert Scale Results - Question 3**

| Round 2 - Question 3                                                                                                                                                                                                                              |                 |    |                        |    |               |     |                    |     |               |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----|------------------------|----|---------------|-----|--------------------|-----|---------------|-----|
| <i>Given the scenario of disbursed operations creating smaller separated logistics footprints and along with it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.</i> |                 |    |                        |    |               |     |                    |     |               |     |
| <i>Central Themed Skills</i>                                                                                                                                                                                                                      | Unimportant (1) |    | Somewhat Important (2) |    | Important (3) |     | Very Important (4) |     | Essential (5) |     |
|                                                                                                                                                                                                                                                   | <i>n</i>        | %  | <i>n</i>               | %  | <i>n</i>      | %   | <i>n</i>           | %   | <i>n</i>      | %   |
| Ability to safely load/unload an aircraft (approach, load, tie-down etc.)                                                                                                                                                                         | 0               | 0% | 1                      | 9% | 0             | 0%  | 1                  | 9%  | 9             | 82% |
| Operation of MHE (Forklifts and loaders)                                                                                                                                                                                                          | 0               | 0% | 0                      | 0% | 1             | 9%  | 1                  | 9%  | 9             | 82% |
| Pallet cargo build-up & processing                                                                                                                                                                                                                | 1               | 9% | 0                      | 0% | 3             | 27% | 2                  | 18% | 5             | 45% |
| Passenger Processing (Certify IAW regs, manifest, inspect, brief, and transport)                                                                                                                                                                  | 0               | 0% | 1                      | 9% | 0             | 0%  | 1                  | 9%  | 9             | 82% |
| Joint Inspection (JI / JAI)                                                                                                                                                                                                                       | 0               | 0% | 1                      | 9% | 0             | 0%  | 1                  | 9%  | 9             | 82% |
| Load Planning (ICODES)2                                                                                                                                                                                                                           | 1               | 9% | 0                      | 0% | 0             | 0%  | 1                  | 9%  | 9             | 82% |

**Table 12: Round 2 Likert Scale Results - Question 4**

Round 2 - Question 4

*If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.*

| Central Themed Skills                                 | Unimportant (1) |     | Somewhat Important (2) |     | Important (3) |     | Very Important (4) |     | Essential (5) |     |
|-------------------------------------------------------|-----------------|-----|------------------------|-----|---------------|-----|--------------------|-----|---------------|-----|
|                                                       | n               | %   | n                      | %   | n             | %   | n                  | %   | n             | %   |
| Assisting TMO duties                                  | 3               | 27% | 2                      | 18% | 2             | 18% | 1                  | 9%  | 3             | 27% |
| Assisting Vehicle Operations duties                   | 1               | 9%  | 0                      | 0%  | 2             | 18% | 3                  | 27% | 5             | 45% |
| Assisting Ground Transportation duties                | 1               | 9%  | 0                      | 0%  | 3             | 27% | 4                  | 36% | 3             | 27% |
| Assisting with security type duties                   | 0               | 0%  | 1                      | 9%  | 4             | 36% | 2                  | 18% | 4             | 36% |
| Assisting with Maintenance duties                     | 4               | 36% | 1                      | 9%  | 3             | 27% | 2                  | 18% | 1             | 9%  |
| Assisting with POL (fuels) duties                     | 3               | 27% | 3                      | 4%  | 4             | 36% | 1                  | 9%  | 0             | 0%  |
| Assisting with Aircraft Ground Equipment (AGE) duties | 1               | 9%  | 3                      | 27% | 4             | 36% | 2                  | 18% | 0             | 0%  |
| Assisting with Aircraft Load Masters duties           | 1               | 9%  | 2                      | 18% | 1             | 9%  | 4                  | 36% | 3             | 27% |
| Assisting with Airfield Management duties             | 1               | 9%  | 2                      | 18% | 4             | 36% | 2                  | 18% | 2             | 18% |

#### 4.4.2 Round 2 Central Themes Mean Scores

The expert panelists considered all of the identified skills for each question as either somewhat important, important, very important, or essential. According to their responses, the Round 2 Central Themes Mean Scores (Tables 13-16) displays the results for each survey question. The researcher had to consider the mean scores from this round to determine which of the listed skills would be included in the survey for Round 3. Standard deviation was also included in the analysis as means to measure central tendency. Consensus for this research was defined as  $\geq 70\%$  (mean  $\geq 3.5$ ) agreement amongst the panel of experts – in other words, a mean rating of 3.5 or higher validated that the expert panelists reached consensus on those particular skills listed under each of the 4 questions. Consequently, only those skills which met or exceeded this measure were included in the Round 3 survey questions.

##### 4.4.2.1 Round 2 – Question 1

**Table 13: Round 2 Central Themes Mean Scores - Question 1**

*Q 1: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities would be in relation to assistance with air transportation personnel functions.*

| Skills, job duties                                                                                          | Mean | SD   |
|-------------------------------------------------------------------------------------------------------------|------|------|
| Ability to operate MHE (10K AT, STD 10K, Large Trucks, Gen Purpose vehicles)                                | 4.82 | 0.60 |
| Ability to assist with cargo pallet build-up & processing                                                   | 4.27 | 1.35 |
| Ability to assist with safely loading/unloading an aircraft (approach, load, tie-down)                      | 4.45 | 1.29 |
| Ability to assist with processing passengers (certify IAW regulations, manifest, inspect, brief, transport) | 3.73 | 1.27 |
| Ability to learn and assist with the Global Air Transportation Execution System (GATES)                     | 3.00 | 1.48 |

#### 4.4.2.2 Round 2 – Question 2

**Table 14: Round 2 Central Themes Mean Scores - Question 2**

*Q 2: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important it would be to exclude the following skills and capabilities given the certifications, specialties and nuances associated with the following tasks/duties.*

| Skills, job duties                                                 | Mean | SD   |
|--------------------------------------------------------------------|------|------|
| Joint Inspection (JI) / Joint Airlift Inspection (JAI)2            | 4.64 | 0.93 |
| Load Planning (ICODES)                                             | 4.18 | 1.17 |
| Special Handling (Hazardous Material Inspection)                   | 4.18 | 1.25 |
| Air Terminal Operations Functions                                  | 3.55 | 0.93 |
| Training on specialized loaders (NGSL 25K "Halverson", 60K Tunner) | 3.18 | 1.33 |
| Training on GATES                                                  | 3.09 | 1.04 |
| Training in Cargo Manifesting                                      | 3.09 | 0.94 |

#### 4.4.2.3 Round 2 – Question 3

**15: Round 2 Central Themes Mean Scores - Question 3**

*Q 3: Given the scenario of disbursed operations creating smaller separated logistics footprints and along with it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.*

| Skills, job duties                                                               | Mean | SD   |
|----------------------------------------------------------------------------------|------|------|
| Operation of MHE (Forklifts and loaders)                                         | 4.73 | 0.65 |
| Ability to safely load/unload an aircraft (approach, load, tie-down etc.)        | 4.64 | 0.93 |
| Joint Inspection (JI / JAI)                                                      | 4.64 | 0.93 |
| Load Planning (ICODES)                                                           | 4.55 | 1.21 |
| Pallet cargo build-up & processing                                               | 3.91 | 1.30 |
| Passenger Processing (Certify IAW regs, manifest, inspect, brief, and transport) | 3.45 | 1.04 |

#### 4.4.2.4 Round 2 – Question 4

**Table 16: Round 2 Central Themes Mean Scores - Question 4**

*Q4: If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.*

| Skills, job duties                                    | Mean | SD   |
|-------------------------------------------------------|------|------|
| Assisting Vehicle Operations duties                   | 4.64 | 1.26 |
| Assisting with security type duties                   | 3.82 | 1.08 |
| Assisting Ground Transportation duties                | 3.73 | 1.19 |
| Assisting with Aircraft Load Masters duties           | 3.55 | 1.37 |
| Assisting with Airfield Management duties             | 3.18 | 1.25 |
| Assisting TMO duties                                  | 2.91 | 1.64 |
| Assisting with Aircraft Ground Equipment (AGE) duties | 2.73 | 0.90 |
| Assisting with Maintenance duties                     | 2.55 | 1.44 |
| Assisting with POL (fuels) duties                     | 2.27 | 1.01 |

#### 4.5 Round 3 Data Collection

The data from Round 2 drove the content for the Round 3 Survey. The panel of experts were sent a notification email (appendix F) with a Google link to access the survey (Appendix G). The questions for this Round were presented in a Likert Scale format where the experts were asked to review the Round 2 results and then re-rate the rankings of the survey. The data collected was built into an excel spreadsheets and tabulated (Appendix H) according to the equation outlined in the non-parametric statistic known as Kendall's Coefficient of Concordance.

For this test statistic W is 1, then all the survey respondents have been unanimous, and each one has assigned the same order to the list of skills presented. If W is 0, then there is no overall trend of agreement among the respondents, and their responses may be regarded as essentially random. Intermediate values of W indicate a greater or lesser degree of unanimity among the expert panel respondents. In an effort to give a qualitative measurement description in addition to the qualitative W test statistic, the researcher employed the scale depicted in Table 17, the Agreement Measures for Categorical Data developed by Landis and Koch (1977).

**Table 17: Agreement Measures for Categorical Data (Landis and Koch, 1977:165)**

Agreement Measures for Categorical Data

| Kappa Statistic | Strength of Agreement |
|-----------------|-----------------------|
| <0.00           | Poor                  |
| 0.00-0.20       | Slight                |
| 0.21-.40        | Fair                  |
| .41-.60         | Moderate              |
| .61-.80         | Substantial           |
| 0.81-1.00       | Almost Perfect        |

In their research, Landis and Koch list this as an arbitrary scale, but nonetheless a useful benchmark for defining levels of agreement in Kappa. For the purposes of this Delphi Study the researcher is utilizing this same scale as a means to convey the intermediate values of W, which indicate a greater or lesser degree of unanimity among the Air Transportation expert panel survey respondents.

#### 4.5.1 Kendall's Coefficient of Concordance ( $W$ )

In order to determine the level of consensus for round 3, I utilized Kendall's Coefficient of Concordance ( $W$ ), which is calculated by equation (1) (Gearhart et al, 2013):

$$W = \frac{12S}{p^2(n^3 - n) - pT} \quad (1)$$

**Equation 1: Kendall's Coefficient of Concordance ( $W$ )**

Where  $S$  is the sum-of-squares from row sums of ranks  $R_i$  (Equation (2)),  $n$  is the number of objects,  $p$  is the number of *experts* and  $T$  is a correction factor for to account for tied rankings (Equation (3));

$$S' = \sum_{i=1}^n R_i^2 = SSR \quad (2)$$

**Equation 2: Sum-of-squared from row sums of ranks**

$$T = \sum_{k=1}^m (t_k^3 - tk) \quad (3)$$

**Equation 3: Correction for tied rankings**

#### 4.5.2 Round 3 Survey Questions Results

The following tables display the consolidated results from Round 3 that were calculated according Kendall's Coefficient of Concordance ( $W$ ):

#### 4.5.2.1 Round 3 – Question 1

**Table 18: Round 3 - Question 1 Rankings**

| <i>Question 1: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rank the following skills and capabilities based on their potential usefulness with air transportation personnel functions support.</i> |                  |                                        |                                           |                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------|-------------------------------------------|------------------------------------------------|
|                                                                                                                                                                                                                                                                              | MHE<br>Operation | Cargo pallet build-<br>up & processing | Ability to safely<br>load/unload aircraft | Ability to assist with<br>Passenger Processing |
| Sum                                                                                                                                                                                                                                                                          | 15               | 20                                     | 33                                        | 42                                             |
| Mean                                                                                                                                                                                                                                                                         | 1.4              | 1.8                                    | 3.0                                       | 3.8                                            |
| Rank                                                                                                                                                                                                                                                                         | 1st              | 2nd                                    | 3rd                                       | 4th                                            |

The rankings for Question 1 displayed above, resulted in a W calculation of 0.75. In referencing the Agreement Measures for Categorical Data (Table 17) developed by Landis and Koch (1977), we can assess that the panel of experts are in *Substantial* agreement in this ranking scheme. While a W of 0.75 does not reflect perfect agreement amongst the raters, it does signify a relatively high level of consensus in their ranking of these skills importance. This data could lend itself to informing the development of an MCA program for training non 2T2 USAF airmen on these certain air transportation skills.

#### 4.5.2.2 Round 3 – Question 2

**Table 19: Round 3 - Question 2 Rankings**

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*Question 2: Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.*

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|      | Operation of<br>MHE | Ability to<br>safely load<br>aircraft | Joint<br>Inspection/JAI | Load Planning<br>(ICODES) | Pallet Cargo<br>build-up &<br>processing |
|------|---------------------|---------------------------------------|-------------------------|---------------------------|------------------------------------------|
| Sum  | 36                  | 35                                    | 20                      | 28                        | 46                                       |
| Mean | 3.27                | 3.18                                  | 1.82                    | 2.55                      | 4.18                                     |
| Rank | 4th                 | 3rd                                   | 1st                     | 2nd                       | 5th                                      |

---

The rankings for Question 2 displayed above, resulted in a W calculation of 0.31. In referencing the Agreement Measures for Categorical Data (Table 17) developed by Landis and Koch (1977), we can assess that the panel of experts are in *Fair* agreement in this ranking scheme. In this instance we can see there was not a very high level of agreement amongst the raters, evidenced by a W of 0.31. While the experts did agree on this set of specific skills being very important to the air transportation career field in a contested environment, they did not fall on a high level of agreement in their individual assessments on order of importance.

#### 4.5.2.3 Round 3 – Question 3

**Table 20: Round 3 - Question 3 Rankings**

| <i>Question 3: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rank which of these duties should be excluded from the program.</i> |                         |                           |                                              |                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------|----------------------------------------------|-----------------------------------------|
|                                                                                                                                                                                                          | Joint<br>Inspection/JAI | Load Planning<br>(ICODES) | Special Handling<br>(Hazardous<br>Materials) | Air Terminal<br>Operations<br>Functions |
| Sum                                                                                                                                                                                                      | 12                      | 23                        | 33                                           | 42                                      |
| Mean                                                                                                                                                                                                     | 1.09                    | 2.09                      | 3                                            | 3.82                                    |
| Rank                                                                                                                                                                                                     | 1st                     | 2nd                       | 3rd                                          | 4th                                     |

The rankings for Question 3 displayed above, resulted in a W calculation of 0.83. In referencing the Agreement Measures for Categorical Data (Table 17) developed by Landis and Koch (1977), we can assess that the panel of experts are in *Almost Perfect* agreement in this ranking scheme. The expert panel was able to obtain a high level of agreement on the order of importance in these skills which should be excluded from an MCA program meant to train outside airmen from the career field. Some expert panel members had expressed their concerns on the skills listed here as being too critical and having high barriers in training and expertise. The researcher felt it important to ascertain both the list of skills that should and those that should not be included in an MCA training program along with their order of importance.

#### 4.5.2.4 Round 3 – Question 4

**Table 21: Round 3 - Question 4 Rankings**

*Question 4: If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.*

|      | Assist with Vehicle<br>Operations duties | Assistance with<br>Security type<br>duties | Assistance with<br>Ground<br>Transportation<br>duties | Assistance with Load<br>Masters duties |
|------|------------------------------------------|--------------------------------------------|-------------------------------------------------------|----------------------------------------|
| Sum  | 27                                       | 40                                         | 25                                                    | 18                                     |
| Mean | 2.45                                     | 3.64                                       | 2.27                                                  | 1.64                                   |
| Rank | 3rd                                      | 4th                                        | 2nd                                                   | 1st                                    |

The rankings for Question 4 displayed above, were met with a W of .42. In referencing the Agreement Measures for Categorical Data (Table 17) developed by Landis and Koch (1977), we can assess that the panel of experts are in *Moderate* agreement in this ranking scheme. While this W score only falls into a lower moderate level of agreement, it does offer some insight into the expert panels' opinion on what type of duties should be considered for inclusion in an MCA training program to enable 2T2 airmen to expand their capabilities into other duties outside of their own career field. The W score indicated a low level of agreement on the order of importance that should be placed on these job duties within other career fields, which was based on the panelists own experience and knowledge in working with these other AFSCs.

#### 4.6 Investigative Questions Answered

The information retrieved from this Classical Delphi Study yielded some interesting results for each round of surveys. The Investigative Questions outlined in the beginning of the study were addressed in the Round 1 Survey, which served as an instrument to pull information

from the expert panel based on their knowledge, skills, and expertise in the Air Transportation career field.

#### ***4.6.1 Investigative Question 1***

What KSAs, job duties and responsibilities are considered most essential within the 2T2 career field?

Round 1 Question 1 targeted this questions, by inquiring “In your experience, what do you feel are the most critical skills you have attained as a USAF air transportation 2T2?” This survey question was used to inform the researcher and determine what the expert panel considered the most essential duties within the 2T2 career field. The panelists responded with these specific skills and job duties:

- Ability to safely load/unload cargo on an aircraft (approach, load, tie-down)
- Pallet/Cargo Build-Up & Processing
- Ability to operate MHE (10K AT Forklift/25K Halvorsen)
- Load Planning
- Special Handling (hazardous material)
- Joint Inspection (JI, JAI)
- Passenger Processing (certify IAW Regs, manifest, inspect, transport)
- Air Terminal Operations Center (ATOC)

As an item of note, two central themes also emerged from the first round surveys. Safety of flight and Adaptability were two other concepts that while not a specific skills, were mentioned as critical to the success of air transportation and air mobility.

#### ***4.6.1 Investigative Question 2***

What job duties and responsibilities are considered most essential for the 2T2 career field given the constraints presented in a contested environment in a disbursed operations scenario?

The Round 1 survey question 7 asked, “Given the scenario of a war time environment in a highly contested battle, what do you believe would be the utmost essential duties of air transportation personnel?” In this instance the panelists responded with the following job skills and duties:

- Ability to safely load/unload cargo on an aircraft (approach, load, tie-down)
- Ability to operate MHE (10K AT Forklift/25K Halvorsen)
- Pallet/Cargo Build-Up & Processing
- Cargo (security)
- Special Handling (hazardous material)
- Joint Inspection (JI, JAI)
- Load Planning (ICODES and Center of Balance)

One respondent specified the need for MHE handling capabilities, cargo processing, and aircraft loading experience:

“Finally, the ability to operate military handling equipment quickly and creatively enough to load the vast majority of cargo. This incorporates an understanding and experience with both of the military handling equipment capabilities and the aircraft limitations to know how and what can and can't be loaded in a contested environment.”

Other expert panel members were able to give detailed reports of their own experiences in wartime environments and dealing with issues such as old equipment, married pallets breakdown, and night vision goggles (NVG) training. However, overarching

emphasis from the majority of the panel experts was the safe and efficient movement of both cargo and passengers.

#### ***4.6.2 Investigative Question 3***

What duties and responsibilities within the Air Transportation career field are deemed to be too critical and/or specialized to be considered for the MCA program?

Round 1, question 6 inquired, “Considering that there is a certain level of critical expertise and experience needed to successfully complete some Air Transportation AFSC duties, what 2T2 skills, in your opinion, would be outside the realistic scope of adding into a training program for other AFSCs to learn and execute?” This particular question was also passed on to Rounds 2 and 3 in an effort to better inform the Research Questions. The respondents in Round 1 returned the following information:

- Joint Inspection (JI, JAI)
- Load Planning (ICODES)
- Special Handling (hazardous material)
- Air Terminal Operations Center (ATOC)
- Loaders (NGSL "Halverson" , 60K Tunner)
- GATES
- Cargo Manifesting

It was interesting to learn that there was some crossover and commonalities in what the experts thought were critical 2T2 duties and which of those skills would be outside the realistic scope of teaching airmen outside of the AFSC to execute the critical mission sets. However, for these experts relied on their understating and experience in these specific duties in making a

thoughtful determination in which skills to list for this particular question. Many experts mentioned the barrier of not only knowing how to perform these critical skills, but also the experience that must be attained in order to become safe and efficient in the duties.

#### ***4.6.3 Investigative Question 4***

What occupations have 2T2 personnel assisted with or what duties have they performed (outside of their own career field core competencies)?

Round 1, question 4 queried the panel for a response on training airmen other than 2T2s, “Have you had experience in training airman from outside of your air transportation flight/squadron (other AFSCs)? If so, describe the scenario and players involved.” The expert panel provided a bevy of skills and job duties that they had instructed airmen on from outside the air transportation career field, of these key skills they listed the following:

- Pallet/Cargo Build-Up
- MHE Training (10 AT, Standard 10K, Halvorsen)
- Assistance in safe load/unload of cargo on aircraft (approach, load, tie-down)
- Cargo Processing
- Passenger Processing (certify IAW Regs, manifest, inspect, transport)
- GATES
- Load Planning (ICODES)

The 2T2 experts offered thorough responses, which detailed their own experience with training other USAF members as well as Army personnel. Some of those duties included training with the Deployable Automated Cargo Measurement System (DACMS), center of balance training, equipment/cargo tie-downs, and MHE (forklift) operations. One expert even

reported a new initiative at his Wing, “The 137th Operations Group created a program called B.D.A.T.I. (Base Deployable Asset Training Initiative) in which different Squadrons process through us and then we do an upload of their deployable cargo.” The expert panel was essential in producing the results for this study and went above and beyond to give their honest and detailed opinions in an effort to inform the research through their experience and knowledge.

#### **4.7 Research Questions Answered**

A presentation of the key results organized by the research questions follows. The two research questions focused on Air Transportation operations and how the MCA concept might best apply to the career field according to the perceptions of the educational leadership experts who participated in the study. In an effort to expand the study, the researcher elected to have a total of 4 questions. 3 of those survey questions were dedicated to the first research question, the first one directly asking the research question as stated and the additional two were meant to target sub-information. The last survey question was meant to focus on the second research question and assist the researcher in determining the best fit AFSCs for 2T2 airmen to expand their capabilities in an MCA training program.

##### ***4.7.1 Research Question 1 Answered***

- What skills, duties, or tasks should be considered to be a part of a 2T2 led training program for other AFSC airmen to best enhance mission capabilities as Multi-Capable Airmen?

While round 1 was used to generate the foundation for Rounds 2 and 3, the questions were also used to answer the investigative questions as outlined in the previous chapter. The researcher then relied on the expert panel to evaluate and answer the questions presented in

Rounds 2 and 3, which yielded critical information concerning the skills and duties pertaining to the two research questions. In Round 2 the expert panel assessed the listing of skills and duties created from the responses and Round 1 coding. The results were a variance of ratings for which each skill had to obtain a threshold of  $\geq 3.5$  mean on the Likert scale. The only skill that was eliminated from this list during the Round 2 evaluation was the “Ability to learn and assist with the Global Air Transportation Execution System (GATES)”. The four central themes emerged from the Delphi Study were:

- MHE Operations
- Loading/Unloading Aircraft
- Cargo Build-Up & Processing
- Processing Passengers

Having obtained the panel’s list of four skills that should be included in an MCA training program, the researcher continued the Delphi rounds to determine the order of importance of those skills in an effort to ascertain which would best enhance airlift mission capabilities. The study continued to Round 3 where the expert panel was asked to rank the order of importance of the four central themes. Since both rounds contained a question pertaining to the expert panel’s opinion on which skills and capabilities would be most useful to the 2T2 community if outside airmen were to be taught through an MCA training program an assessment of the two is needed to analyze the difference in the two rounds. A comparison of the rankings and ratings during the two rounds is displayed in table 22.

#### 4.7.1.1 Rounds 2 & 3 Comparison Chart 1

Table 22: Rounds 2 & 3 Comparison - Question 1

| Themes                                                                                                                                                                                                                                                                    | Round 2 |        | Round 3 |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|---------|
|                                                                                                                                                                                                                                                                           | Mean    | Rating | Mean    | Ranking |
| <i>Q1: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities would be in relation to assistance with air transportation personnel functions.</i> |         |        |         |         |
| Ability to operate MHE (10K AT, STD 10K, Large Trucks, Gen Purpose vehicles)                                                                                                                                                                                              | 4.8     | 1st    | 1.4     | 1st     |
| Ability to assist with safely loading/unloading an aircraft (approach, load, tie-down)                                                                                                                                                                                    | 4.5     | 2nd    | 1.8     | 2nd     |
| Ability to assist with cargo pallet build-up & processing                                                                                                                                                                                                                 | 4.3     | 3rd    | 3.0     | 3rd     |
| Ability to assist with processing passengers (certify IAW regulations, manifest, inspect, brief, transport)                                                                                                                                                               | 3.7     | 4th    | 3.8     | 4th     |

The ratings obtained in Round 2 indicate the average score (in ascending order) from the Likert scale assessment on which skills should be included in an MCA training program.

The W obtained in Round 3 was 0.75, which was a high level of agreement. It can be assessed that the ranking displayed under Round 3 in Table 22 is indicative of a successful consensus of the order of importance of those duties listed. The group is in agreement that these skills are foundational to the success of air transportation operations and their order of importance is meaningful in how 2T2 airmen are trained.

#### ***4.7.1.2 Rounds 2 & 3 Comparison Chart 2***

The researcher also wished to garner the expert's opinions on which of those duties in the air transportation's operations arsenal should not be included in an MCA training program for other AFSCs. The response echoed the following list of skills and job duties as being too critical, detailed, and overall unreasonable to expect airmen from outside the career field to be trained and proficient on:

- Joint Inspection (JI) / Joint Airlift Inspection (JAI)
- Load Planning (ICODES)
- Special Handling (Hazardous Material Inspection)
- Air Terminal Operations Functions

The four sets of skills were ranked during both rounds and a consensus was reached that these specific skills should be excluded from a 2T2 led MCA training program. It was further determined that the rankings set by the expert panel responses are indicative of the level of importance and the critical training and proficiency barriers that exist for each of the skills as reasoning why they should not be include in an MCA training program. Across Rounds 2 and 3 the rating and ranking of these skills did not change. A comparison of the rankings and ratings during the two rounds is displayed on table 23.

**Table 23: Rounds 2 & 3 Comparison - Question 2**

| Themes                                                                                                                                                                                                                                                                                                         | Round 2 |        | Round 3 |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|---------|
| <i>Q2: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important it would be to exclude the following skills and capabilities given the certifications, specialties and nuances associates with the following tasks/duties.</i> | Mean    | Rating | Mean    | Ranking |
| Joint Inspection (JI) / Joint Airlift Inspection (JAI)                                                                                                                                                                                                                                                         | 4.5     | 1st    | 1.1     | 1st     |
| Load Planning (ICODES)                                                                                                                                                                                                                                                                                         | 4.3     | 2nd    | 2.1     | 2nd     |
| Special Handling (Hazardous Material Inspection)                                                                                                                                                                                                                                                               | 4.2     | 3rd    | 3.0     | 3rd     |
| Air Terminal Operations Functions                                                                                                                                                                                                                                                                              | 3.6     | 4th    | 3.8     | 4th     |

The ratings obtained in Round 2 indicate the average score (in ascending order) from the Likert scale assessment on which skills should not be included in an MCA training program.

The W obtained in Round 3 was 0.83, which was a highest level of agreement in this Delphi Study. A W of this range from 0 to 1 indicates a very high level of consensus amongst the group. It can be assessed that the ranking displayed under Round 3 in Table 23 is indicative of a successful consensus of the order of importance in excluding those duties listed. The group is in agreement that these skills are outside of the scope and feasibility in expecting airmen from outside the career field to learn and be expected to execute at a reasonable level of proficiency.

#### ***4.7.1.3 Rounds 2 & 3 Comparison Chart 3***

Finally, for research question 1, the researcher also included a question that would lend detail to those AFSCs or like-duties that would be most essential in a contested environment in

an effort to analyze the responses and make inferences on the most essential skills for air transportation personnel. The survey question asked the panel members to rate a set of ground support operation duties on importance in the scenario of a contested environment. The order of these skills and duties yielded the largest change in rating/ranking order, indicating a low consensus on the level of importance for each skill. However, while the ranking order contained variance, the researcher contends that the list of skills still bears weight as it they were derived from the expert panel responses over the 3 rounds. A comparison of the rankings and ratings during the two rounds is displayed on the next table.

**Table 24: Rounds 2 & 3 Comparison - Question 1**

| Themes                                                                                                                                                                                                                                                | Round 2 |        | Round 3 |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|---------|
|                                                                                                                                                                                                                                                       | Mean    | Rating | Mean    | Ranking |
| <i>Q3: Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.</i> |         |        |         |         |
| Operation of MHE (Forklifts and loaders)                                                                                                                                                                                                              | 4.7     | 1st    | 3.3     | 4th     |
| Joint Inspection (JI / JAI)                                                                                                                                                                                                                           | 4.6     | 2nd    | 1.8     | 1st     |
| Ability to safely load/unload an aircraft (approach, load, tie-down etc.)                                                                                                                                                                             | 4.6     | 2nd    | 3.2     | 3rd     |
| Load Planning (ICODES)                                                                                                                                                                                                                                | 4.5     | 3rd    | 2.5     | 2nd     |
| Pallet cargo build-up & processing                                                                                                                                                                                                                    | 3.9     | 4th    | 4.2     | 5th     |

The ratings obtained in Round 2 indicate the average score (in ascending order) from the Likert scale assessment on which skills are most important in a contested environment amongst

disbursed operations. While this question doesn't directly ask anything of the MCA concept, it does relate in the fact that the scenario is a depiction of where MCA could be most appropriately applied in combat operations.

The W obtained in Round 3 here was only 0.31, which was the lowest level of agreement in this Delphi Study. A W of this range from 0 to 1 indicates a low level of consensus amongst the group. The rankings displayed under Round 3 in Table 24 are not aligned with that of Round 2, which is indicative of a relatively unsuccessful consensus of the order of importance of those duties listed. The group did determine that these skills are crucial in a wartime environment, however, they did find a high level of agreement in the order of their importance given the scenario of disbursed operations in a contested environment.

#### ***4.7.2 Research Question 2 Answered***

- What other career fields do 2T2 airmen have experience assisting with in duties and responsibilities so as to identify which areas might be most feasible to include in a Multi-Capable Airmen training program for Air Transportation personnel?

Question #4 in Rounds 2 and Round 3 surveys was designed to target information that would assist in answering this second research question. This line of effort included the one question that directly queried the panel on the research question as stated. The first question (Q4) queried the panel on their experience in completing duties outside of the 2T2 career field. This was meant to determine if there were existing cross-training instances that could be included in future MCA programs for 2T2 airmen. The four duties that reached a consensus on average ratings and rankings were:

- Assisting Vehicle Operations duties

- Assisting with security type duties
- Assisting Ground Transportation duties
- Assisting with Aircraft Load Masters duties

It is important to note that there were a number of other AFSCs that were mentioned and vetted for consensus, but did not reach the threshold to make it through both rounds. The career fields of Fuels (POL), Maintenance (MX), Airfield Management (AMOPS), Traffic Management (TMO), and Aircraft Ground Equipment (AGE) were all included in the analysis of this Delphi Study. A comparison of the results with the four central themes from the two rounds is displayed below.

#### ***4.7.2.1 Rounds 2 & 3 Comparison Chart 4***

**Table 25: Rounds 2 & 3 Comparison - Question 1**

| Themes                                                                                                                                                                                                                                                                          | Round 2 |        | Round 3 |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|---------|
|                                                                                                                                                                                                                                                                                 | Mean    | Rating | Mean    | Ranking |
| Q4: If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience. |         |        |         |         |
| Assisting Vehicle Operations duties                                                                                                                                                                                                                                             | 4.6     | 1st    | 2.5     | 3rd     |
| Assisting with security type duties                                                                                                                                                                                                                                             | 3.8     | 2nd    | 3.6     | 4th     |
| Assisting Ground Transportation duties                                                                                                                                                                                                                                          | 3.7     | 3rd    | 2.3     | 2nd     |
| Assisting with Aircraft Load Masters duties                                                                                                                                                                                                                                     | 3.5     | 4th    | 1.6     | 1st     |

The subsequent ratings obtained in Round 2 indicated are displayed in accordance with their average scores (in ascending order) from the Likert scale assessment depicting which skills are most important if the USAF were to develop an MCA program for 2T2s their own capabilities outside of the 2T2 career field.

The W obtained in Round 3 here was 0.42, which was only a Fair level of agreement. A W of this range from 0 to 1 indicates a low to mid-range level of consensus amongst the group. While it's not in the higher ranges as we had seen on some of the previous questions, the researcher felt like this question in particular could have benefited from an additional round of assessments and rankings from the expert panel.

It is also worthwhile to mention that the Round 1 Survey Question #2 aimed to garner information from the expert panel on experiences they might have had with duties outside of the 2T2 career field. The response received from the expert panel set the foundation for central themes that were identified as most likely to produce the greatest return on investment if they were added to an MCA training program to expand the capabilities of 2T2 airmen.

## **IV. Conclusions and Recommendations**

### **5.1 Conclusions of Research**

In summary, the return on investment in exploring opportunities to expand the capabilities of not only our 2T2 airmen, but airmen across the USAF, has the potential to offer combatant commanders a stock of ready, experienced, and multi-capable military members. In particular, this study has highlighted the usefulness of an AFSC expert panel and the information that can be gleaned from the group in pursuit of applying the MCA concept to airmen from differing career fields.

This research aimed to answer questions for the Air Transportation career field on how the MCA concept might best fit and be useful for the 2T2 community. The Delphi Study was able to ascertain information on the specific skills that should and should not be included in an MCA training program led by 2T2 airmen. It also highlighted the opinions of the expert panel on which AFSCs would best align based on duties or responsibilities they had experienced to include in an MCA training program for 2T2 airmen to expand their own capabilities.

The Classical Delphi Study involved garnering qualitative data and refining it into useful quantitative data that could then be further analyzed for consensus and forecasting. As stated previously, the USAF has adopted the concept of Multi-Capable Airmen, however, it is still in an early stage of understanding, planning, and implementation. However, it's promising to see that there already seems to be a hunger for defining what an MCA training program looks like – evidenced by Wing exercises and cross-training programs at the unit level across a multitude of bases.

The future outlook of a near-peer, high-end fight looks to demand more from the personnel who support airlift operations. Continuing to explore the MCA concept through the

analysis of experts from each career field will only bolster the USAF's ability to capture the critical skills that will provide the most use for supporting airlift capabilities.

## **5.2 Significance of Research**

Exploration of this concept is useful in the fact that the future fight may very well prove to be against a well-supplied and capable enemy with the means to repel attacks and inflict damage. The pacing threat from two major players on the world stage in China and Russia understandably pose new challenges to the United States in technological capabilities, missile arsenal, and overall military might. The idea of ACE and its requirements of dispersed operations implies a need for a tailored logistics supply chain and along with a well-equipped, knowledgeable, and experienced support force.

The time for airmen to expand their knowledge base and develop their MCA skills is now. The outcome a future fight with a near-peer competitor will largely rely on the ability to generate airpower in a contested environment. In that same line of thought, the need to have airmen who can perform an array of ground support duties will prove to be beneficial to USAF in ensuring mission generation is continuous and unaffected in a high-end fight.

## **5.3 Recommendations for Action and Future Research**

MCA training has been explored in line with the ACE concept. Majors Scott D. Adamson and Shane "Axl" Praiswater, military analysts with the Center on Military and Political Power at the Foundation for Defense of Democracies, stated:

Thus far, multi-capable training has been developed and executed by various major commands, and — at the start of this year — the Air Force began crafting a program baseline. To build on this foundation and produce multirole airmen from the outset of their military career, incorporating the new training standard into applicable technical

schools would aid in growing the requisite skills needed to compete in tomorrow's fight. (Defensenews, 2020).

This Delphi Study was focused on the USAF Air Transportation career field. In recruiting experts from the field and garnering their opinions on the MCA concept, analyzing the data, general conclusions were able to be assessed. This method of research is ideal for this type of study involving qualitative data and coding it into quantitative information. Further exploration in to the Multi-Capable Airman concept can be done by generating another Delphi Study focused on another AFSC tied to aircraft ground support. The research would prove to be useful in supporting the idea of MCA in a contested environment associated with ACE. The concept of Logistics Under Attack (LUA) is a real-world threat that could be supported through MCA employment.

Through the consensus of a Delphi study, a researcher can perform a comparative analysis of knowledge, skills, and abilities (KSAs) across other career fields. This analysis is a key element in developing the Delphi Study as it will lead to determining the feasible options of duties associated with MCA. This research is a process that can be used both ways between different AFSC's. This has the potential to result in added value for continuity across locations in combat support operations.

## Appendix A

### Delphi Study Informational Letter

January 21, 2022

Dear Air Transportation Expert,

I am a master's degree candidate in the Air Force Institute of Technologies' Advanced Study of Air Mobility (ASAM) program at the U.S. Air Force Expeditionary Center. I am conducting a Classical Delphi study which seeks to identify a list of skills air transportation leadership experts perceive as most feasible/useful for air transportation personnel to learn/teach to successfully support a total ground support team effort in aircraft mission generation in an agile combat employment (ACE) environment.

I am asking for your assistance in completing the study by participating in three rounds of surveys that will require no more than 10 minutes per survey. If you agree to participate in the survey rounds, you can be assured that your responses will be kept strictly confidential. No names will be attached or associated with your responses. All information will remain in locked files, accessible only to myself as the researcher. You will be free to withdraw from the Delphi study at any time. You are also encouraged to ask any questions that will help you understand how this study will be performed and how it will affect you.

As the researcher, I will be available via [anthony.munoz.2@us.af.mil](mailto:anthony.munoz.2@us.af.mil) or by phone: to answer any questions or concerns that you may have. Your participation would be greatly appreciated and valued.

Sincerely,

ANTHONY C. MUNOZ, Major, USAF  
Student, Advanced Study of Air Mobility  
USAF Expeditionary Center, JB MDL, NJ  
Advisor: Matthew D. Roberts, Lt Col, PhD, USAF, Air Force Institute of Technology

## Appendix B

### Email Message – Round 1

Hello, Air Transportation Expert:

Thank you again for your willingness to participate in this survey. My hope is that this research may lead to offering more opportunities for our port dawgs across the enterprise. I've attached survey 1, the first iteration in the rounds of a total of 3 surveys. You may find that this first survey is a bit more involved from a respondent perspective as it serves as a baseline and will feed into survey 2.

As a former air transportation craftsman I have always had an affinity for the Port Dawg community. Whenever possible, I am on the lookout for ways to give back to the AFSC that helped to develop and shape me as an airman. Thank you for allowing me to garner your opinion and expertise to help facilitate my research in developing the Multi-Capable Airman concept and how it might apply to 2T2 airmen.

As a reminder, there will be a four (4) day window to complete and return this questionnaire - if possible, submit your completed form back to me NLT 07MAR. Please contact me at any time should you need to extend this deadline. Additionally, feel free to contact me with any questions or concerns.

V/r,

ANTHONY C. MUNOZ, Major, USAF  
Student, Advanced Study of Air Mobility  
USAF EC, JB MDL, NJ  
Cell: 307-920-1184

## Appendix C

Name:

Date :

### **INSTRUCTIONS:**

This is the first round out of a total 3 survey rounds that will be conducted for this research. This first round is meant to collect and analyze the opinions from an expert panel on the ideal tasks, duties, and responsibilities that can be tied to the 2T2 community to enable the AFSC to enhance their capability under the Multi-Capable Airman concept. Additionally, this research will aim to identify those tasks, duties, and responsibilities that can be led by the 2T2 community as a training program to enhance the capability of our brothers and sisters in closely associated ground support AFSCs.

### **DEFINITIONS:**

#### **What is a Multi-Capable Airman (MCA)?**

Multi-Capable Airmen: Airmen accomplishing tasks outside their core Air Force Specialty. Specifically, these personnel train as a cross-functional team to meet and provide combat support to aviation force elements conducting dispersed and dynamic operations. They are enabled by cross-utilization training and are able to operate independently to accomplish mission objectives within acceptable levels of risk.

*The Mobility Forum Magazine – 2021*

#### **What is Agile Combat Employment (ACE) and how is it different in how we employ combat airpower today?**

Agile Combat Employment (ACE): a proactive and reactive operational scheme of maneuver executed within threat timelines to increase survivability while generating combat power throughout the integrated deterrence continuum.

How is ACE different? The US faces adversaries capable of wielding a disruptive and dangerous operational reach with mass, precision, and speed in all domains. Adversaries can challenge the US's ability to project power from MOBs, often large and centralized physical structures with unprotected infrastructure. To address this threat, ACE shifts operations from centralized physical infrastructures to a network of smaller, dispersed locations that can complicate adversary planning and provide more options for joint force commanders. Its value derives from the ability to hold adversary targets at risk from multiple locations that are defensible, sustainable, and relocatable. Airmen should expect to conduct operations at a speed, scope, complexity, and scale exceeding recent campaigns from distributed locations.

*AF Doctrine Note 1-21*

**Question 1:** In your experience, what do you feel are the most critical skills you have attained as a USAF air transportation 2T2?

**Question 2:** In your own experience, in dealing with other AFSCs on the flight line or any other capacity as a 2T2, what if any duties (outside of 2T2 duties) have you critically observed and/or assisted with?

**Question 3:** Do you currently operate/participate in a MCA program (formal or informal) in your unit or Wing? If so, what are the strengths and weaknesses of the formal or informal program?

**Questions 4:** Have you had experience in training airman from outside of your air transportation flight/squadron (other AFSCs)? If so, describe the scenario and players involved.

**Question 5:** Considering that there is a certain level of critical expertise and experience needed to successfully complete some Air Transportation AFSC duties, what 2T2 skills, in your opinion, would be most useful/feasible to add into a training program for other AFSCs learn to best enhance mission capabilities under the MCA concept?

**Question 6:** Considering that there is a certain level of critical expertise and experience needed to successfully complete some Air Transportation AFSC duties, what 2T2 skills, in your opinion, would be outside the realistic scope of adding into a training program for other AFSCs learn and execute?

**Question 7:** Given the scenario of a war time environment in a highly contested battle, what do you believe would be the utmost essential duties of air transportation personnel?

**Question 8:** Given the same scenario of a string of small bases on a chain of islands used for projecting airpower, what ground support operations do you believe are most vital?

## Appendix D

### Email Message – Round 2

Hello, Air Transportation Expert:

The Round 2 survey is composed in a Likert scale format through Google Forms, in my trial round it took less than 4 minutes to complete! The link to the survey is:  
<https://forms.gle/natpuXpmmn8qFooT7>

The questions listed in this round were built from the data derived from Round 1, inclusive of all the panel experts' responses. In this round, you will determine the importance of the skills listed by using the 5-point Likert scale. Instructions on the scale range and selection options is listed within the survey itself. You will also have the opportunity to revisit and modify previous responses.

As an item of note, I was not unable to get the survey link to run on my Air Force computer, but it does work on smartphones! If you would rather, I can just text you the link to complete the form - please let me know. Otherwise, you can forward this email to your civilian email and access the survey using your smartphone or personal computer.

As a reminder, there will be a four (4) day window to complete and return this survey - if possible, submit your completed form back to me ASAP, but NLT 15APR. Please contact me at any time should you need to extend this deadline or if you have any questions. Lastly, shoot me a reply to this email or a simple text to the cell number below to let me know once you've completed the survey so I can account for all experts on the panel.

Thanks again!

V/r,

ANTHONY C. MUNOZ, Major, USAF  
Student, Advanced Study of Air Mobility  
USAF EC, JB MDL, NJ  
Cell: 307-920-1184

## Appendix E

### Round 2 Survey

#### Round 2 – Question 1



### Multi-Capable Airmen (MCA) concept for Air Transportation Operations

 acmunoz307@gmail.com (not shared) [Switch account](#)



\* Required

If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities would be in relation to assistance with air transportation personnel functions.

Ability to operate MHE (10K AT, STD 10K, Large Trucks, Gen Purpose vehicles) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Ability to assist with cargo pallet build-up & processing \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Ability to assist with safely loading/unloading an aircraft (approach, load, tie-down) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

Unimportant 1 2 3 4 5 Essential

Ability to assist with processing passengers (certify IAW regulations, manifest, inspect, brief, transport) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

Unimportant 1 2 3 4 5 Essential

Ability to learn and assist with the Global Air Transportation Execution System (GATES) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

Unimportant 1 2 3 4 5 Essential

Back

Next

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## Round 2 – Question 2



### Multi-Capable Airmen (MCA) concept for Air Transportation Operations

 acmunoz307@gmail.com (not shared) [Switch account](#)



\* Required

If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important it would be to exclude the following skills and capabilities given the certifications, specialties and nuances associates with the following tasks/duties.

Unimportant to exclude meaning you would elect to train outside personnel -or- Essential to exclude meaning we should not include the task/duty with the MCA training program

#### Joint Inspection (JI) / Joint Airlift Inspection (JAI) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

1 2 3 4 5  
Unimportant to exclude ☐ ☐ ☐ ☐ ☐ Essential to exclude

#### Load Planning (ICODES) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

1 2 3 4 5  
Unimportant to exclude ☐ ☐ ☐ ☐ ☐ Essential to exclude

Joint Inspection (JI) / Joint Airlift Inspection (JAI) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|                        | 1                     | 2                     | 3                     | 4                     | 5                     |                      |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Unimportant to exclude | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential to exclude |

Special Handling (Hazardous Material Inspection) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|                        | 1                     | 2                     | 3                     | 4                     | 5                     |                      |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Unimportant to exclude | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential to exclude |

Air Terminal Operations Functions \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|                        | 1                     | 2                     | 3                     | 4                     | 5                     |                      |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Unimportant to exclude | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential to exclude |

Training on specialized loaders (NGSL 25K "Halverson", 60K Tunner) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|                        | 1                     | 2                     | 3                     | 4                     | 5                     |                      |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Unimportant to exclude | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential to exclude |

Training on GATES \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|                        | 1                     | 2                     | 3                     | 4                     | 5                     |                      |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Unimportant to exclude | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential to exclude |

Training in Cargo Manifesting \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|                        | 1                     | 2                     | 3                     | 4                     | 5                     |                      |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Unimportant to exclude | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential to exclude |

Back

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Round 2 – Question 3



## Multi-Capable Airmen (MCA) concept for Air Transportation Operations

 acmunoz307@gmail.com (not shared) [Switch account](#)



\* Required

Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.

Ability to safely load/unload an aircraft (approach, load, tie-down etc.) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Operation of MHE (Forklifts and loaders) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Pallet cargo build-up & processing \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Passenger Processing (Certify IAW regs, manifest, inspect, brief, and transport) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Joint Inspection (JI / JAI) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Load Planning (ICODES) \*

1= Unimportant 2= Somewhat Important 3=Important 4=Very Important 5=Essential

|             | 1                     | 2                     | 3                     | 4                     | 5                     |           |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| Unimportant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Essential |

Back

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## Round 2 – Question 4



### Multi-Capable Airmen (MCA) concept for Air Transportation Operations

 acmunoz307@gmail.com (not shared) [Switch account](#)



\* Required

If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.

If you have direct knowledge or experience in dealing with any of the following duties as a 2T2, you may have a unique perspective on whether or not it would be beneficial to include or exclude it in an MCA program for Air Transportation personnel. "Proven Return on Investment (ROI)" means you know of, have seen, or performed this duty and can attest to its usefulness as an added capability for 2T2 airmen.

#### Assisting TMO duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

#### Assisting Vehicle Operations duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

#### Assisting Ground Transportation duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

#### Assisting with security type duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

#### Assisting with Maintenance duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

Assisting with POL (fuels) duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

Assisting with Aircraft Ground Equipment (AGE) duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

Assisting with Aircraft Load Masters duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

Assisting with Airfield Management duties \*

1=Unlikely 2=Somewhat Unlikely 3=Likely 4=Very Likely 5= Proven Return on Investment (ROI)

|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| Unlikely | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Proven ROI |

Back

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Google Forms

## **Appendix F**

### **Email Message – Round 3**

Hello, Air Transportation Expert:

The final survey for my research is ready! This Round 3 survey was developed through Google Forms, it's another easy-to-use format like we had in the last round! The link to the survey is: <https://forms.gle/9yDFvW2AbYFMQHVM6>

As an item of note, I was not unable to get the survey link to run on my Air Force computer, but it does work on smartphones! If you would rather, I can just text you the link to complete the form - please let me know. Otherwise, you can forward this email to your civilian email and access the survey using your smartphone or personal computer.

As a reminder, there will be a four (4) day window to complete and return this survey - if possible, submit your completed form back to me ASAP, but NLT 13MAY. Please contact me at any time should you need to extend this deadline or if you have any questions. Lastly, shoot me a reply to this email or a simple text to the cell number below to let me know once you've completed the survey so I can account for all experts on the panel.

Thank you so much for your time!

V/r,

ANTHONY C. MUNOZ, Major, USAF  
Student, Advanced Study of Air Mobility  
USAF EC, JB MDL, NJ  
Cell: 307-920-1184

## Appendix G

### Round 3 Survey



## Multi- Capable Airman (MCA) Concept for Air Transportation Operations - Round 3

Round 3 Survey - Researcher Maj Anthony C. Munoz (USAF/EC ASAM - Student)



acmunoz307@gmail.com (not shared) [Switch account](#)



Round 2 is complete, and this is the 3rd and final survey! Thank you so much for assisting me and serving as a 2T2 expert on this panel. The following survey is similar to Round 2 -- we are driving towards a consensus on what the most important (and most feasible) duties are that should be included in an MCA program for 2T2s to teach outside airmen in the event that they could potentially help us if we need assistance. Additionally, my research also focuses on what AFSCs would be best to include in an MCA program for 2T2s to grow and learn outside of their own career field. Essentially, this creates a baseline for the Air Transportation career field and as A4 continues to develop the MCA concept, 2T2's will have a head-start in defining what it might look like and how it might best apply for the Port Dawg community.

\*If you are taking this survey on your smart phone, it displays best if you turn your phone sideways (landscape) style to view.

Next

Clear form

## Delphi Study Round 3 Questions

Question 1: If the USAF were to develop an MCA training program for the 2T2 <sup>\*</sup> community to manage and train outside AFSC personnel, rank the following skills and capabilities based on their potential usefulness with air transportation personnel functions support.

The picture below is a visual depiction of the aggregated and ranked information from Round 2, inclusive of all expert panel responses. 70% ( $\geq 3.5$ ) was the threshold for consensus on a job function to make it to round 3.

| If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important the following skills and capabilities would be in relation to assistance with air transportation personnel functions. |      |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|
|                                                                                                                                                                                                                                                                | Mean | Rank   |
| Ability to operate MHE (10K AT, STD 10K, Large Trucks, Gen Purpose vehicles)                                                                                                                                                                                   | 4.82 | First  |
| Ability to assist with safely loading/unloading an aircraft (approach, load, tie-down)                                                                                                                                                                         | 4.45 | Second |
| Ability to assist with cargo pallet build-up & processing                                                                                                                                                                                                      | 4.27 | Third  |
| Ability to assist with processing passengers (certify IAW regulations,                                                                                                                                                                                         | 3.73 | Fourth |
| Ability to learn and assist with the Global Air Transportation                                                                                                                                                                                                 | 3.00 |        |

|                                             | Rank 1                | Rank 2                | Rank 3                | Rank 4                |
|---------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| MHE Operation                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cargo pallet build-up & processing          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to safely load/unload aircraft      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to assist with Passenger Processing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Question 2: Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance. \*

The picture below is a visual depiction of the aggregated and ranked information from Round 2, inclusive of all expert panel responses. 70% ( $\geq 3.5$ ) was the threshold for consensus on a job function to make it to round 3.

| Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance. | Mean | Rank          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|
| Operation of MHE (Forklifts and loaders)                                                                                                                                                                                                   | 4.73 | First         |
| Joint Inspection (JI / JAI)                                                                                                                                                                                                                | 4.64 | Second (Tied) |
| Ability to safely load/unload an aircraft (approach, load, tie-down)                                                                                                                                                                       | 4.64 | Second (Tied) |
| Load Planning (ICODES)                                                                                                                                                                                                                     | 4.55 | Third         |
| Pallet cargo build-up & processing                                                                                                                                                                                                         | 3.91 | Fourth        |
| Passenger Processing (Certify LAW regs, manifest, inspect, brief, and                                                                                                                                                                      | 3.45 |               |

|                                    | Rank 1                           | Rank 2                | Rank 3                | Rank 4                | Rank 5                |
|------------------------------------|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Operation of MHE                   | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to safely load aircraft    | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Joint Inspection/JAI               | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Load Planning (ICODES)             | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Pallet Cargo build-up & processing | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Question 3: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rank which of these duties should be excluded from the program. \*

The picture below is a visual depiction of the aggregated and ranked information from Round 2, inclusive of all expert panel responses. 70% ( $\geq 3.5$ ) was the threshold for consensus on a job function to make it to round 3.

| If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rate how important it would be to exclude the following skills and capabilities given the certifications, specialties and nuances associates with the following tasks/duties. |      |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------|
|                                                                                                                                                                                                                                                                                                     | Mean | Rank         |
| Joint Inspection (JI) / Joint Airlift Inspection (JAI)2                                                                                                                                                                                                                                             | 4.64 | First        |
| Load Planning (ICODES)                                                                                                                                                                                                                                                                              | 4.18 | Third (Tied) |
| Special Handling (Hazardous Material Inspection)                                                                                                                                                                                                                                                    | 4.18 | Third (Tied) |
| Air Terminal Operations Functions                                                                                                                                                                                                                                                                   | 3.55 | Fourth       |
| Training on specialized loaders (NGSL 25K "Halverson", 60K Turner)                                                                                                                                                                                                                                  | 3.18 |              |
| Training on GATES                                                                                                                                                                                                                                                                                   | 3.09 |              |
| Training in Cargo Manifesting                                                                                                                                                                                                                                                                       | 3.09 |              |

|                        | Rank 1                | Rank 2                | Rank 3                | Rank 4                |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Joint Inspection/JAI   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Load Planning (ICO...  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Special Handling (...) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Air Terminal Operat... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

...

Question 4: If the USAF were to develop an MCA program for 2T2s to develop and further their \*  
own experience outside of the air transportation career field core competencies, rate the  
following job duties/skills based on your own personal knowledge, understanding, and  
experience.

The picture below is a visual depiction of the aggregated and ranked information from Round 2, inclusive of all expert panel  
responses. 70% ( $\geq 3.5$ ) was the threshold for consensus on a job function to make it to round 3.

| If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience. |      |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|
|                                                                                                                                                                                                                                                                             | Mean | Rank   |
| Assisting Vehicle Operations duties                                                                                                                                                                                                                                         | 4.64 | First  |
| Assisting with security type duties                                                                                                                                                                                                                                         | 3.82 | Second |
| Assisting Ground Transportation duties                                                                                                                                                                                                                                      | 3.73 | Third  |
| Assisting with Aircraft Load Masters duties                                                                                                                                                                                                                                 | 3.55 | Fourth |
| Assisting with Airfield Management duties                                                                                                                                                                                                                                   | 3.18 |        |
| Assisting TMO duties                                                                                                                                                                                                                                                        | 2.91 |        |
| Assisting with Aircraft Ground Equipment (AGE) duties                                                                                                                                                                                                                       | 2.73 |        |
| Assisting with Maintenance duties                                                                                                                                                                                                                                           | 2.55 |        |
| Assisting with POL (fuels) duties                                                                                                                                                                                                                                           | 2.27 |        |

|                         | Rank 1                | Rank 2                | Rank 3                | Rank 4                |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Assist with Vehicle ... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Assistance with Se...   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Assistance with Gr...   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Assistance with Lo...   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any other input from the questions and duties you just ranked? I wanted to offer the opportunity for any comments you might have on the MCA concept and how it might best fit into 2T2 operations.

Not Required

Long answer text

## Appendix H

### Round 3 Survey Results

Question 1: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rank the following skills and capabilities based on their potential usefulness with air transportation personnel functions support.

| Participants | MHE Operation | Cargo pallet build-up & processing | Ability to safely load/unload aircraft | Ability to assist with Passenger Processing |
|--------------|---------------|------------------------------------|----------------------------------------|---------------------------------------------|
| 1            | 2             | 1                                  | 3                                      | 4                                           |
| 2            | 1             | 2                                  | 3                                      | 4                                           |
| 3            | 1             | 3                                  | 2                                      | 4                                           |
| 4            | 1             | 2                                  | 3                                      | 4                                           |
| 5            | 2             | 1                                  | 4                                      | 3                                           |
| 6            | 1             | 2                                  | 3                                      | 4                                           |
| 7            | 2             | 1                                  | 3                                      | 4                                           |
| 8            | 1             | 2                                  | 3                                      | 4                                           |
| 9            | 1             | 3                                  | 2                                      | 4                                           |
| 10           | 1             | 2                                  | 3                                      | 4                                           |
| 11           | 2             | 1                                  | 4                                      | 3                                           |
| Sum          | 15            | 20                                 | 33                                     | 42                                          |
| Mean         | 1.363636364   | 1.818181818                        | 3                                      | 3.818181818                                 |
| Rank         | 1st           | 2nd                                | 3rd                                    | 4th                                         |

Question 2: Given the scenario of disbursed operations creating smaller separated logistics footprints and along with-it new challenges to generating airpower in a contested environment, rate the following ground support operations on importance.

| Participants | Operation of MHE | Ability to safely load aircraft | Joint Inspection/JAI | Load Planning (ICODES) | Pallet Cargo build-up & processing |
|--------------|------------------|---------------------------------|----------------------|------------------------|------------------------------------|
| 1            | 3                | 4                               | 1                    | 2                      | 5                                  |
| 2            | 4                | 3                               | 1                    | 2                      | 5                                  |
| 3            | 1                | 2                               | 4                    | 5                      | 3                                  |
| 4            | 3                | 4                               | 1                    | 2                      | 5                                  |
| 5            | 5                | 4                               | 1                    | 2                      | 3                                  |
| 6            | 1                | 3                               | 2                    | 4                      | 5                                  |
| 7            | 4                | 3                               | 1                    | 2                      | 5                                  |
| 8            | 5                | 3                               | 2                    | 1                      | 4                                  |
| 9            | 1                | 2                               | 5                    | 4                      | 3                                  |
| 10           | 4                | 3                               | 1                    | 2                      | 5                                  |
| 11           | 5                | 4                               | 1                    | 2                      | 3                                  |
| Sum          | 36               | 35                              | 20                   | 28                     | 46                                 |
| Mean         | 3.272727273      | 3.181818182                     | 1.818181818          | 2.545454545            | 4.181818182                        |
| Rank         | 4th              | 3rd                             | 1st                  | 2nd                    | 5th                                |

Question 3: If the USAF were to develop an MCA training program for the 2T2 community to manage and train outside AFSC personnel, rank which of these duties should be excluded from the program.

| Participants | Joint<br>Inspection/JAI | Load Planning<br>(ICODES) | Special Handling<br>(Hazardous<br>Materials) | Air Terminal<br>Operations<br>Functions |
|--------------|-------------------------|---------------------------|----------------------------------------------|-----------------------------------------|
| 1            | 1                       | 2                         | 3                                            | 4                                       |
| 2            | 1                       | 3                         | 2                                            | 4                                       |
| 3            | 1                       | 2                         | 3                                            | 4                                       |
| 4            | 1                       | 2                         | 3                                            | 4                                       |
| 5            | 1                       | 2                         | 3                                            | 4                                       |
| 6            | 2                       | 1                         | 4                                            | 3                                       |
| 7            | 1                       | 2                         | 4                                            | 3                                       |
| 8            | 1                       | 2                         | 3                                            | 4                                       |
| 9            | 1                       | 2                         | 3                                            | 4                                       |
| 10           | 1                       | 3                         | 2                                            | 4                                       |
| 11           | 1                       | 2                         | 3                                            | 4                                       |
| Sum          | 12                      | 23                        | 33                                           | 42                                      |
| Mean         | 1.1                     | 2.1                       | 3.0                                          | 3.8                                     |
| Rank         | 1st                     | 2nd                       | 3rd                                          | 4th                                     |

Question 4: If the USAF were to develop an MCA program for 2T2s to develop and further their own experience outside of the air transportation career field core competencies, rate the following job duties/skills based on your own personal knowledge, understanding, and experience.

| Participants | Assist with Vehicle Operations duties | Assistance with Security type duties | Assistance with Ground Transportation duties | Assistance with Load Masters duties |
|--------------|---------------------------------------|--------------------------------------|----------------------------------------------|-------------------------------------|
| 1            | 2                                     | 3                                    | 4                                            | 1                                   |
| 2            | 2                                     | 4                                    | 3                                            | 1                                   |
| 3            | 4                                     | 3                                    | 2                                            | 1                                   |
| 4            | 2                                     | 4                                    | 3                                            | 1                                   |
| 5            | 3                                     | 4                                    | 2                                            | 1                                   |
| 6            | 3                                     | 4                                    | 1                                            | 2                                   |
| 7            | 2                                     | 4                                    | 1                                            | 3                                   |
| 8            | 3                                     | 4                                    | 1                                            | 2                                   |
| 9            | 1                                     | 2                                    | 3                                            | 4                                   |
| 10           | 2                                     | 4                                    | 3                                            | 1                                   |
| 11           | 3                                     | 4                                    | 2                                            | 1                                   |
| Sum          | 27                                    | 40                                   | 25                                           | 18                                  |
| Mean         | 2.454545455                           | 3.636363636                          | 2.272727273                                  | 1.636363636                         |
| Rank         | 3rd                                   | 4th                                  | 2nd                                          | 1st                                 |

## Appendix I

Institutional Review Board (IRB)



### DEPARTMENT OF THE AIR FORCE AIR UNIVERSITY (AETC)

21 Jan 22

MEMORANDUM FOR AFIT HUMAN RESEARCH PROTECTION PROGRAM (HRPP), OFFICE OF SPONSORED PROGRAMS AND RESEARCH (ENR)

FROM: USAF EC/ASAM

SUBJECT: Principal Investigator Cover Letter for Exempt Determination Request for a Qualitative Analysis of the Multi-Capable Airman (MCA) Concept for Air Transportation Operations.

1. Request AFIT HRPP review and approval of the Exempt Determination Request protocol named above which should be considered as a freestanding protocol.
2. As principal investigator (PI), the undersigned affirms that the protocol complies with the requirements for exempt research set forth in Federal code and the DoD, Air Force, and AFIT instructions implementing it. In addition, the undersigned agrees to:
  - a. Ensure that all exempt research conducted under this protocol will conform to the written, approved document, including any restrictions imposed during the approval process. The funding and resources for this research have been procured/acquired to conduct this project as submitted in the protocol. The funding source is:

|                              |           |
|------------------------------|-----------|
| Funding Agency/Organization: |           |
| Funding Amount: N/A          | JON#: N/A |

- b. Personally conduct and supervise the study and be responsible for the conduct of all persons acting on behalf of the Principal Investigator.
  - c. Monitor the progress of this research and notify the AFIT HRPP in writing within 24 hours of any unexpected event, unanticipated problem, safety concern or medical misadventure.
  - d. Promptly notify AFIT HRPP, if either the risk or the benefit of the research appears substantially different from those represented in the protocol, or if early results clearly resolve the hypothesis.
  - e. Ensure all individuals assisting in the study are adequately trained, and aware of their responsibilities.

- f. Maintain and retain all study and protocol documents as required by the protocol and DoD regulations.

Conduct this research in compliance with the principles of Human Subjects Research found in the Belmont Report: 1. Respect for Persons requires that subjects, to the extent they are capable, be given the opportunity to choose what will or will not happen to them. The informed consent process contains three elements: information, comprehension and voluntariness. 2. Beneficence closely relates to the risk/benefit assessment which is concerned with the probabilities and degree of possible harm and anticipated benefits. 3. Justice addresses moral requirements that there be fair procedures and outcomes in the selection of research subjects. Individual justice ensures that the selection of subjects is done in fairness. Social justice requires that distinction be drawn between who should and who shouldn't participate in any particular kind of research based on the ability of individuals to bear burdens and on the appropriateness of placing further burdens on already burdened persons.

3. As the Principal Investigator of this research study I assume responsibility for the overall management of this protocol and ensuring each investigator meets the reporting requirements of the attached Conflict of Interest Disclosure Checklist. I agree to notify AFIT HRPP in writing if any conflict of interest within the research team exists or arises during the project.
4. In accordance with DoD 8520.02, only Principal Investigators with a CAC card may provide an electronic signature as permitted on this template. For Principal Investigators who do not have a CAC card, please print the completed application, provide a handwritten signature, and scan the document so that it may be attached to an email for submission.

MUNOZ.ANTHONY

ANTHONY C. MUNOZ, Major, USAF  
Student, Advanced Study of Air Mobility

Principal investigator

Attachment:  
Citi Program Certificate



Completion Date 10-Sep-2021  
Expiration Date 09-Sep-2024  
Record ID 44960216

This is to certify that:

**Anthony Munoz**

Has completed the following CITI Program course:

Not valid for renewal of certification  
through CME.

**Basic Course - Human Subjects Research**

(Curriculum Group)

**Air Force Research Laboratory (AFRL)**

(Course Learner Group)

**1 - Basic Course**

(Stage)

Under requirements set by:

**U.S. Air Force Research Laboratory**

**CITI**  
Collaborative Institutional Training Initiative

Verify at [www.citiprogram.org/verify/?wf605cc08-95d0-4ea0-a4f9-40cb26f144ae-44960216](http://www.citiprogram.org/verify/?wf605cc08-95d0-4ea0-a4f9-40cb26f144ae-44960216)

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| <b>14. ABSTRACT</b><br>The USAF Air Transportation career field is a critical element in the overarching capability of the logistics supply chain. Throughout history, the military supply chain has evolved in order to meet combatant commander's needs and sustain the force in an ever changing environment. This research examines specific skills and abilities of Aerial Port members. Expert Air Transportation Logisticians from across the U.S. were queried to gather and analyze data for this research. Through a qualitative process, this study follows a Classic Delphi Study approach and through content analysis and expert consensus yields the ideal jobs, duties and tasks that should be included in the creation of training programs for the 2T2 community.                                                                                                                                                                                       |                    |                                          |                                   |                                   |                                                                          |  |
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