Technical Report 1425

Army-wide Job Analysis for Officers: Branch and Functional Area-specific Knowledge, Skills, and Behaviors Requirements from the Army Talent Attribute Framework Volume I: Main Report

Ryan P. Royston
Naiqing Lin
U.S. Army Research Institute

December 2022

**United States Army Research Institute
for the Behavioral and Social Sciences**

**U.S. Army Research Institute
for the Behavioral and Social Sciences**

**Department of the Army
Deputy Chief of Staff, G1**

Authorized and approved:

**MICHELLE L. ZBYLUT, Ph.D.
Director**

Technical Review by

Dr. Kathleen Darbor, U.S. Army Research Institute
Dr. Brendon Woody, U.S. Army Research Institute

DISPOSITION

This Technical Report has been submitted to the
Defense Information Technical Center (DTIC).

REPORT DOCUMENTATION PAGE

1. REPORT DATE (Month Year) December 2022	2. REPORT TYPE Final	3. DATES COVERED (Month Year)	
		START DATE November 2021	END DATE March 2022

4. TITLE AND SUBTITLE
Army-wide Job Analysis for Officers: Branch and Functional Area-specific Knowledge, Skills, and Behaviors Requirements from the Army Talent Attribute Framework Volume I: Main Report

5a. CONTRACT NUMBER N/A	5b. GRANT NUMBER N/A	5c. COOPERATIVE AGREEMENT NUMBER N/A

5d. PROGRAM ELEMENT NUMBER 0602785A	5e. PROJECT NUMBER 790	5f. TASK NUMBER N/A	5g. WORK UNIT NUMBER 1101

6. AUTHOR(S)
Royston, Ryan P., Lin, Naiqing

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Research Institute for the Behavioral and Social Sciences 6000 6th Street (Bldg. 1464/Mail Stop 5610) Ft. Belvoir, VA 22060-5610	8. PERFORMING ORGANIZATION REPORT NUMBER Technical Report 1425

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Research Institute for the Behavioral and Social Sciences 6000 6th Street (Bldg. 1464 / Mail Stop: 5610) Fort Belvoir, Virginia 22060-5610	10. SPONSOR/MONITOR'S ACRONYM(S) ARI	11. SPONSOR/MONITOR'S REPORT NUMBER(S) Technical Report 1425

12. DISTRIBUTION/AVAILABILITY STATEMENT
Distribution Statement A: Approved for public release, distribution unlimited.

13. SUPPLEMENTARY NOTES
See Volume II, ARI Research Note 2023-06 for the Appendices; available in the Defense Information Technical Center.
ARI Research POC: Dr. Ryan P. Royston, Predictive Analytics and Modeling Research Unit

14. ABSTRACT
The Army-wide Job Analysis for Officers identifies Knowledge, Skill, and Behavior (KSB) requirements for active-duty officers ranked Second Lieutenant through Lieutenant Colonel using the Army Talent Attribute Framework (ATAF). This study used an online survey sent to a large sample of officers who rated the importance of job duties and ATAF KSBs for successful job performance. This report summarizes KSB importance ratings for officers in basic branches and functional areas, along with rank-specific KSB requirements. This research serves as a baseline for future talent management research, such as investigating new job analytic techniques, tracking Army modernization efforts, and analyzing force restructuring demands for particular attributes. This research also serves as a critical baseline for informing numerous current and future Army talent management efforts outlined in the Army People Strategy (2019) – (a) Acquire, (b) Develop, (c) Employ, and (d) Retain. Army stakeholders, workforce analysts, talent managers, and strength managers (i.e., those responsible for tracking incoming and outgoing Soldiers) may use these findings to determine position-specific attribute requirements, match individuals to open positions, identify talent gaps, and provide individual developmental opportunities. Additionally, results can be used for career pathing and identifying individuals with in-demand talents and providing opportunities for career advancement.

15. SUBJECT TERMS
Job Analysis, Talent Management, KSBs, Talent Management, Army Talent Attribute Framework (ATAF), KSAOs

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES
a. REPORT Unclassified	b. ABSTRACT Unclassified	C. THIS PAGE Unclassified	Unclassified Unlimited	51

19a. NAME OF RESPONSIBLE PERSON Charles T. Keil	19b. PHONE NUMBER (Include area code) 703-545-2352

Technical Report 1425

Army-wide Job Analysis for Officers: Branch and Functional Area-specific Knowledge, Skills, and Behaviors Requirements from the Army Talent Attribute Framework Volume I: Main Report

Ryan P. Royston
Naiqing Lin
U.S. Army Research Institute

Predictive Analytics and Modeling Research Unit
Charles T. Keil, Chief

December 2022

ACKNOWLEDGEMENT

ARMY-WIDE JOB ANALYSIS FOR OFFICERS: IDENTIFYING BRANCH AND FUNCTIONAL AREA-SPECIFIC KNOWLEDGE, SKILL, AND BEHAVIOR REQUIREMENTS FROM THE ARMY TALENT ATTRIBUTE FRAMEWORK VOLUME I: MAIN REPORT

EXECUTIVE SUMMARY

Research Requirement:

The Army has focused on developing a talent management system that effectively recognizes and uses an individual's knowledge, skills, and behaviors (KSBs). The Army People Strategy (2019) outlines the Army's approach to a strategic talent management-based personnel system through: 1). Acquiring, 2). Developing, 3). Employing, and 4). Retaining Talent. Implementing a modernized, data-driven talent management systems and processes for the Army will enable strategic workforce development, reduce talent gaps, and increase overall Army readiness. An essential component to modernizing the Army's talent management system is to identify the attributes that are necessary for performance. To meet this critical need of the Army, the purpose of this research was to conduct a large-scale job analysis to identify the attributes critical to success for officers across each Army Branch/Functional Area and rank using the newly developed Army Talent Attribute Framework (ATAF).

Procedure:

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) developed an online job analysis survey (Army-wide Job Analysis for Officers) in collaboration with the Army's Talent Management Task Force (ATMTF). A total of 51,172 participants were invited via email to participate in the survey. Four weeks into the data collection, an open-internet link to the same survey was approved to increase response rates and survey access. Participants responded to position and service questions (e.g., time in position, time in rank, Area of Concentration), then responded to a branch/FA-specific duty list based on their AOC input. From there, participants were presented with the complete ATAF KSB list and asked to rate the importance of each for performance in their position. The survey was open from 4 November 2021 to 31 March 2022. After data cleaning, the dataset consisted of total of 3,267 officers across all branches/FAs.

Findings:

This report summarizes officer KSB importance ratings for the basic Branches/Functional Areas (FAs). Observing KSB importance ratings across the Army, regardless of rank or Branch/FA, communication appears to be one of the most important attributes for Soldiers. KSBs related to Communication Ability tended to dominate the top KSBs across multiple Branches/FAs. Observing which KSBs emerged as most important Army-wide by rank showed that First and Second Lieutenants ranked Stress Tolerance and Dependability as the most important attributes, while Captains, Majors, and Lieutenant Colonels rated Communication Ability as being the top attribute required. Captains also tended to report KSBs related to Leadership and Management,

and additional higher level thinking skills such as Critical Thinking and Analytical Thinking as being important. KSBs that appeared at the Major level tended to be those related to broader Organizational Perspective, Coordinating Multiple Groups, and Systems Thinking. Army Values emerged as a top attribute for Lieutenant Colonels, suggesting that officers at this level are expected to be examples of integrity, loyalty, and service. Further, observing Branch/FA-specific KSB requirements, Communication Ability emerged as the top KSB required by 16 of the basic Branches/FAs, though officers in FAs tended to indicate a greater variety of top attributes, likely due to their specialized training and task requirements.

Utilization and Dissemination of Findings:

The results of this job analysis will be used by ARI to guide numerous talent management research efforts. For example, this data will allow researchers to explore new approaches to job analysis (e.g., by extracting job requirements from text responses using natural language processing) and identify where and how assessments may most be needed (and, where necessary, develop such assessments). This job analysis also serves as a critical baseline for supporting current and future Army talent management efforts based on the Army People Strategy of acquiring, developing, employing, and retaining critical talent. A vital part of an effective talent management system is identifying key attributes necessary to perform a given job.

The results of this study support the Army's focus on acquiring talent by clearly identifying attributes from the ATAF that were important for officers to perform successfully in positions by rank and by Branch/FA. For Army talent management and strength managers (i.e., individuals responsible for tracking incoming and outgoing Soldiers), the results of this study clearly outline attribute requirements for each position, which further allows them to communicate these requirements to the talent pool and match candidates to available job positions based on alignment between the candidate's strengths and position requirements using an effective selection and assessment strategy. The results of this study will also be used to improve the AIM2 Marketplace process for officers applying to positions by enabling them to communicate their strengths to units of interest. In support of the Army's focus on developing talent, these results allow the identification of talent gaps and opportunities to develop individuals through appropriate training, education, and credentialing. It also allows individuals to identify areas in which they need further development in preparation for a desired position. Supporting the Army's emphasis on employing talent, this job analysis also has implications for officer career pathing and succession planning, as well as aligning individuals to jobs and career opportunities based on their attributes. In support of the Army's focus on retaining talent, the position requirements outlined by this study will allow Army talent management to identify individuals with in-demand talents and engage these individuals with opportunities for career counseling and permeability (i.e., moving between different workforce positions for which they may be suited). Further, individuals can identify developmental areas to facilitate their career trajectory and engage in relevant trainings or experiences.

ARMY-WIDE JOB ANALYSIS FOR OFFICERS: IDENTIFYING BRANCH AND
FUNCTIONAL AREA-SPECIFIC KNOWLEDGE, SKILL, AND BEHAVIOR
REQUIREMENTS FROM THE ARMY TALENT ATTRIBUTE FRAMEWORK VOLUME I:
MAIN REPORT

CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES (SEE VOLUME II)

ARMY-WIDE JOB ANALYSIS FOR OFFICERS: BRANCH AND FUNCTIONAL AREA-SPECIFIC KNOWLEDGE, SKILL, AND BEHAVIOR REQUIREMENTS FROM THE ARMY TALENT ATTRIBUTE FRAMEWORK VOLUME I: MAIN REPORT

Introduction

The Army People Strategy (2019) outlines the Army's goal of moving from talent management processes that rely heavily on filling empty billets to data-driven processes that strategically and actively manage the talents of Army personnel. The Army's approach to a strategic talent management-based personnel system includes four lines of effort: 1). Acquire, 2). Develop, 3). Employ, and 4). Retain Talent. Consequently, the Army has focused on developing a talent management system that effectively recognizes an individual's knowledge, skills, and behaviors (KSBs) and places individuals in roles that align with their KSBs. Implementing a modernized, data-driven talent management system for the Army also enables strategic workforce development, reduces talent gaps, and increases overall Army readiness. With the recent development of the Army Talent Attribute Framework (ATAF), the Army now has an extensive taxonomy of the various attributes relevant to individual success. An essential component to modernizing the Army's talent management system is to identify the attributes that are necessary to perform successfully in each position.

In order to identify critical attributes to successful performance and position requirements, the purpose of this research was to conduct a large-scale job analysis to support the Army's focus on acquiring, developing, employing, and retaining talent. The results of this study provide a complete summary of attribute importance across the entire Army and identifies the attributes critical to success in positions across each Army Branch(BR)/Functional Area (FA) and rank using the newly developed ATAF. Identifying key attributes necessary for successful performance in a given job is critical to supporting an effective Army talent management system and enhancing overall Army readiness.

Specifically, in support of the Army's focus on acquiring talent, this job analysis provides Army talent management and strength managers (i.e., individuals responsible for tracking incoming and outgoing Soldiers) with an understanding of attribute requirements for each position. This understanding allows them to communicate position requirements to the talent pool and better match candidates to available job positions by aligning the candidate's strengths and position requirements using a valid and reliable assessment strategy. In support of the Army's effort to develop talent, the results of this study facilitate the identification of talent gaps and opportunities to develop individuals through appropriate training, education, and credentialing. In support of the Army's emphasis on employing talent, this job analysis supports the Army's emphasis on retaining talent by emphasizing alignment between individual strengths and job requirements, as well as informing talent-based individual career pathing. The Army has recognized the importance of person-job alignment and is actively engaged in modernizing Army talent management by better aligning individuals to jobs and career opportunities based on their attributes. Further, this study supports the Army's focus on retaining talent by providing an understanding of position attribute requirements, as well as workforce positions with similar attribute requirements. This understanding allows Army talent management to identify individuals with in-demand talents and engage these individuals with opportunities for career

counseling and permeability (i.e., moving between different workforce positions for which they may be suited). Emphasizing alignment between individual attributes and position requirements has been shown to increase worker job satisfaction, motivation, and retention (e.g., Barrick & Mount, 2005; Barrick & Parks-Leduc, 2019). This large-scale job analysis was approved by Army senior leadership to support this critically important modernization effort.

Further, ARI researchers can use the results of this job analysis as a critical baseline for informing and guiding a number of talent management research initiatives. For instance, analysis of individual text data collected during job analyses can be time-consuming and cumbersome (Putka at al., 2022); however, new approaches such as natural language processing (NLP) and machine learning (ML) can facilitate more efficient ways of extracting attribute requirements from job incumbents. This data will also help researchers and planners better understand where particular types of assessments may be most needed in the future.

The Army Talent Attribute Framework

The ATAF serves as the foundation for this Army-wide job analysis. The ATAF was developed and adopted as the common framework for describing the capabilities of Army personnel and the requirements of positions throughout the Army and was a joint effort between the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) and Army Talent Management Task Force (ATMTF) (Royston et al., 2022). It consolidates the attributes contained within the "21 Talents" of the Office of Economic and Manpower Analysis (OEMA), ADP 6-22's leadership competency model, and the Army Talent Alignment Process (ATAP) Knowledge, Skills, Behaviors, and Preferences (KSB-P) list. It also contains attributes identified as being important to Army personnel from the Department of Labor/Employment and Training Administration Occupational Information Network (O*NET), and from an extensive review of academic sources.

The ATAF was agreed upon by the ATMTF, OEMA, U.S. Army Training Doctrine and Command – Operations, Plans, and Training (TRADOC G-3/5/7), and three organizations from the Combined Arms Center (CAC), including Army University (ArmyU), Center for Army Professional Leadership (CAPL), and Mission Command Center of Excellence (MCCoE). The ATAF also received approval by the Assistant Secretary of the Army (Manpower & Reserve Affairs) to be the standard framework for attributes and attribute data in the Military Implementation Plan (Army People Strategy, 2019). Currently, the ATAF is being implemented within Army human capital data systems (e.g., the Integrated Personnel and Pay System-Army (IPPS-A)) to assess, report, develop, and track talent attributes of military personnel and is being piloted in Army talent management systems such as Assignment Interactive Module Version 2 (AIM2). Ensuring a common lexicon among talent management initiatives allows for data linkage across different talent management applications. Additionally, the ATAF undergoes an annual review cycle to revise and refine the framework to ensure it meets changing and emerging needs of the Army.

The ATAF is structured within three tiers to facilitate Army talent management professionals to visualize and understand how attributes are interrelated. Tier 1 consists of seven Talent Domains representing broad categories of attributes: (1) Cognitive, (2) Communication, (3) Disposition,

(4) Interpersonal, (5) Leadership & Management, (6) Expertise & Personal Competence, and (7) Physical. Tier 2 represents 42 sub-categories or Talents, which are defined as "unique, measurable clusters of highly interrelated knowledge, skills, and behaviors possessed by an individual, which results in effective performance when properly aligned against a particular job" (Royston et al., 2022, p.7). Tier 3 contains 198 measurable KSBs that are contained within the 42 Talents. In contrast to most traditional talent management systems, which use the terminology of Knowledge, Skills, Abilities, and Other Characteristics (KSAOs) to describe attributes required by individuals in given positions, the Army uses the term Knowledge, Skills, and Behaviors (KSBs) where Behavior is used as a substitute for Ability and Other Characteristics.

KSBs are further defined as follows (Royston et al., 2022):

Knowledge: "What I know": A topically organized set of facts and information acquired by a person through experience, education, or training, which supports work related performance.
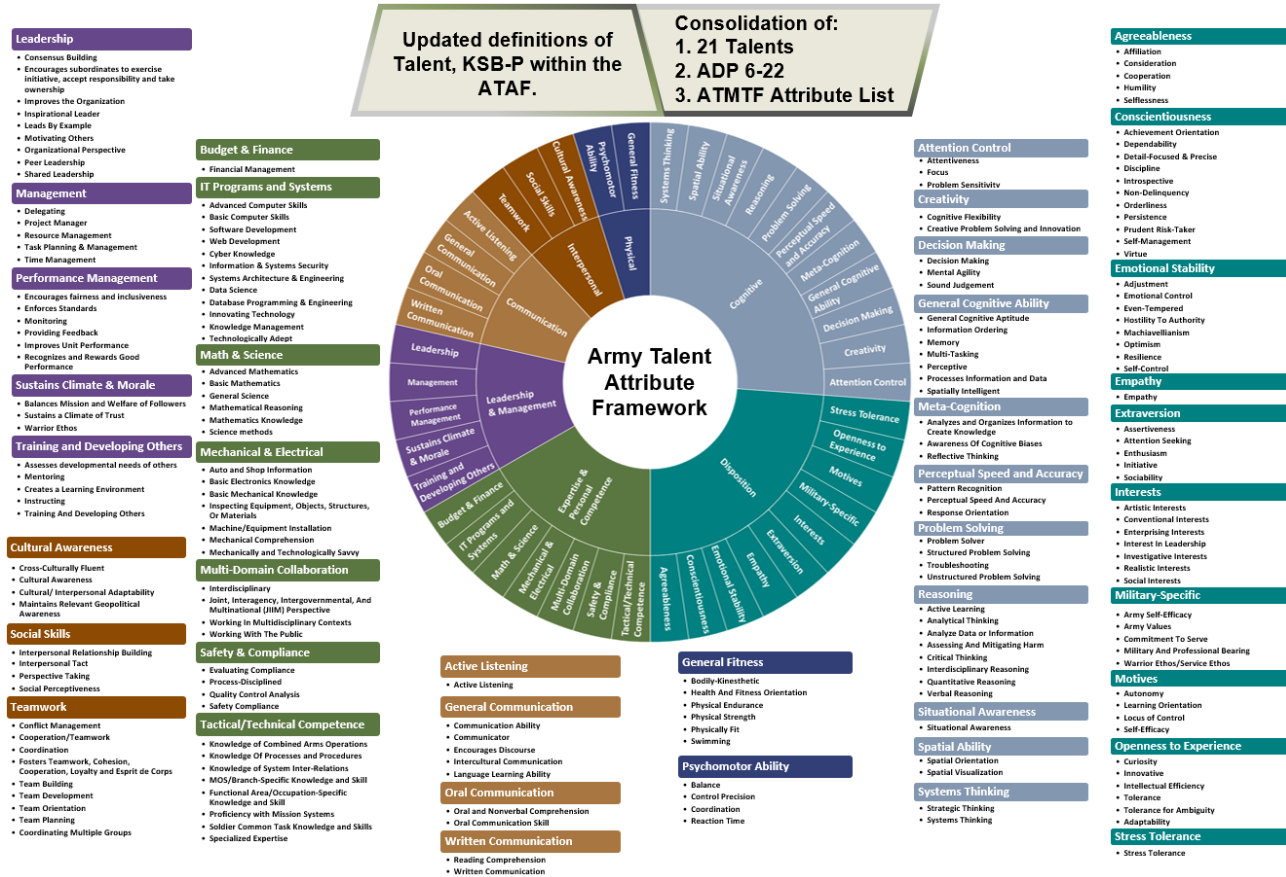
Skill: "What I can do": A person's proficiency and ability to perform a job-related activity that contributes to effective performance or learning.

Behavior: "How I act": A person's values, attitudes, and temperament as evidenced through their actions.

For a complete visual representation of the ATAF, see Figure 1.

Figure 1

Complete Army Talent Attribute Framework (ATAF)

Updated definitions of Talent, KSB-P within the ATAF.

Consolidation of:
1. 21 Talents
2. ADP 6-22
3. ATMTF Attribute List

Leadership
- Consensus Building
- Encourages subordinates to exercise initiative, accept responsibility and take ownership
- Improves the Organization
- Inspirational Leader
- Leads By Example
- Motivating Others
- Organizational Perspective
- Peer Leadership
- Shared Leadership

Management
- Delegating
- Project Manager
- Resource Management
- Task Planning & Management
- Time Management

Performance Management
- Encourages fairness and inclusiveness
- Enforces Standards
- Monitoring
- Providing Feedback
- Improves Unit Performance
- Recognizes and Rewards Good Performance

Sustains Climate & Morale
- Balances Mission and Welfare of Followers
- Sustains a Climate of Trust
- Warrior Ethos

Training and Developing Others
- Assesses developmental needs of others
- Mentoring
- Creates a Learning Environment
- Instructing
- Training And Developing Others

Cultural Awareness
- Cross-Culturally Fluent
- Cultural Awareness
- Cultural/ Interpersonal Adaptability
- Maintains Relevant Geopolitical Awareness

Social Skills
- Interpersonal Relationship Building
- Interpersonal Tact
- Perspective Taking
- Social Perceptiveness

Teamwork
- Conflict Management
- Cooperation/Teamwork
- Coordination
- Fosters Teamwork, Cohesion, Cooperation, Loyalty and Esprit de Corps
- Team Building
- Team Development
- Team Orientation
- Team Planning
- Coordinating Multiple Groups

Budget & Finance
- Financial Management

IT Programs and Systems
- Advanced Computer Skills
- Basic Computer Skills
- Software Development
- Web Development
- Cyber Knowledge
- Information & Systems Security
- Systems Architecture & Engineering
- Data Science
- Database Programming & Engineering
- Innovating Technology
- Knowledge Management
- Technologically Adept

Math & Science
- Advanced Mathematics
- Basic Mathematics
- General Science
- Mathematical Reasoning
- Mathematics Knowledge
- Science methods

Mechanical & Electrical
- Auto and Shop Information
- Basic Electronics Knowledge
- Basic Mechanical Knowledge
- Inspecting Equipment, Objects, Structures, Or Materials
- Machine/Equipment Installation
- Mechanical Comprehension
- Mechanically and Technologically Savvy

Multi-Domain Collaboration
- Interdisciplinary
- Joint, Interagency, Intergovernmental, And Multinational (JIIM) Perspective
- Working in Multidisciplinary Contexts
- Working With The Public

Safety & Compliance
- Evaluating Compliance
- Process-Disciplined
- Quality Control Analysis
- Safety Compliance

Tactical/Technical Competence
- Knowledge of Combined Arms Operations
- Knowledge Of Processes and Procedures
- Knowledge of System Inter-Relations
- MOS/Branch-Specific Knowledge and Skill
- Functional Area/Occupation-Specific Knowledge and Skill
- Proficiency with Mission Systems
- Soldier Common Task Knowledge and Skills
- Specialized Expertise

Active Listening
- Active Listening

General Communication
- Communication Ability
- Communicator
- Encourages Discourse
- Intercultural Communication
- Language Learning Ability

Oral Communication
- Oral and Nonverbal Comprehension
- Oral Communication Skill

Written Communication
- Reading Comprehension
- Written Communication

General Fitness
- Bodily-Kinesthetic
- Health And Fitness Orientation
- Physical Endurance
- Physical Strength
- Physically Fit
- Swimming

Psychomotor Ability
- Balance
- Control Precision
- Coordination
- Reaction Time

Army Talent Attribute Framework

Attention Control
- Attentiveness
- Focus
- Problem Sensitivity

Creativity
- Cognitive Flexibility
- Creative Problem Solving and Innovation

Decision Making
- Decision Making
- Mental Agility
- Sound Judgement

General Cognitive Ability
- General Cognitive Aptitude
- Information Ordering
- Memory
- Multi-Tasking
- Perceptive
- Processes Information and Data
- Spatially Intelligent

Meta-Cognition
- Analyzes and Organizes Information to Create Knowledge
- Awareness Of Cognitive Biases
- Reflective Thinking

Perceptual Speed and Accuracy
- Pattern Recognition
- Perceptual Speed And Accuracy
- Response Orientation

Problem Solving
- Problem Solver
- Structured Problem Solving
- Troubleshooting
- Unstructured Problem Solving

Reasoning
- Active Learning
- Analytical Reasoning
- Analyze Data or Information
- Assessing And Mitigating Harm
- Critical Thinking
- Interdisciplinary Reasoning
- Quantitative Reasoning
- Verbal Reasoning

Situational Awareness
- Situational Awareness

Spatial Ability
- Spatial Orientation
- Spatial Visualization

Systems Thinking
- Strategic Thinking
- Systems Thinking

Agreeableness
- Affiliation
- Consideration
- Cooperation
- Humility
- Selflessness

Conscientiousness
- Achievement Orientation
- Dependability
- Detail-Focused & Precise
- Discipline
- Introspective
- Non-Delinquency
- Orderliness
- Persistence
- Prudent Risk-Taker
- Self-Management
- Virtue

Emotional Stability
- Adjustment
- Emotional Control
- Even-Tempered
- Hostility To Authority
- Machiavellianism
- Optimism
- Resilience
- Self-Control

Empathy
- Empathy

Extraversion
- Assertiveness
- Attention Seeking
- Enthusiasm
- Initiative
- Sociability

Interests
- Artistic Interests
- Conventional Interests
- Enterprising Interests
- Interest In Leadership
- Investigative Interests
- Realistic Interests
- Social Interests

Military-Specific
- Army Self-Efficacy
- Army Values
- Commitment To Serve
- Military And Professional Bearing
- Warrior Ethos/Service Ethos

Motives
- Autonomy
- Learning Orientation
- Locus of Control
- Self-Efficacy

Openness to Experience
- Curiosity
- Innovative
- Intellectual Efficiency
- Tolerance
- Tolerance for Ambiguity
- Adaptability

Stress Tolerance
- Stress Tolerance

Note: *Tier 1 Talent Domains depicted in the inner circle, Tier 2 Talents in the outer circle, and Tier 3 measurable KSBs listed on outside of circle*

Job Analysis Purpose

Job analyses may be conducted for a variety of reasons and are a critical component of effective workforce planning. Job analyses are intended to identify job requirements and usually establish criticality of job duties and tasks. These underlying job requirements define the basic qualifications or talents are needed to successfully perform work duties.

Job analyses also provide information for job descriptions, classification, evaluation, and design. Further, they are the basis for developing performance appraisals, conducting training needs analysis, strategic workforce planning, identifying hazardous behaviors and conditions, compliance with regulations and laws, and identifying the knowledge, skills, and abilities required for a job role, which can then be used to match individuals to jobs (Morgeson et al., 2020). A great deal of research has suggested that person-job alignment is a critical component to improving worker job satisfaction, motivation, and retention (e.g., Barrick & Mount, 2005; Barrick & Parks-Leduc, 2019). The Army has also taken this into consideration and is now taking strides to improve how individuals are matched to positions. The Army's goal of better aligning individuals to jobs based on their attributes was the driving force behind this large-scale job analysis effort. The recently developed ATAF further supports the Army's person-job alignment efforts by providing a common lexicon to describe individual characteristics required of jobs across the Army enterprise.

There are a variety of job analysis methods that can obtain the necessary information to accomplish the goals of the job analysis. The goals of this job analysis included: 1) determine the relative importance of job duties for each position, and 2) determine which KSBs are critical to successful job performance, therefore a task inventory approach was determined to be most appropriate for this research endeavor. The task inventory approach involves developing a list of tasks or duties that make up a job position, then administering the list to job incumbents who rate each task or duty on importance, frequency, or difficulty (Wyse & Babcock, 2018). Tasks are usually generated from sources such as job descriptions, interviews, or other documents describing duties or tasks. Following collection of incumbent task ratings, the outcome is a statistical summary of the importance, frequency, or difficulty of each task, which is determined through calculation of means and standard deviations (*SD*). The *SD* is useful because it gives job analysts an idea of the variability from the mean rating. For this research, Branch/FA-specific duty lists were developed by aggregating items appearing on the official Individual Critical Task Lists (ICTLs) that were publicly available, which provide specific work tasks officers in a particular Branch/FA are expected to perform. Each incumbent also rated the importance of each ATAF KSB for successful performance in their job position.

These KSB importance ratings were calculated for each Branch/FA and used to build profiles outlining the most important KSBs for officers in that particular Branch/FA. More specifically, these profiles are aimed to provide a critical baseline to support current and future Army talent management, including improving person-job alignment, identifying training needs, increasing job satisfaction, aiding career progression, and facilitating succession planning. Traditionally, the Army assigned individuals to positions based on availability and rank, rather than considering how one's talents and attributes aligned with position requirements. However, as the Army begins modernizing its talent management system, it has recognized the advantages of emphasizing person-job fit and understanding what attributes facilitate success in particular positions. Additionally, it will allow for an improved AIM 2.0 Marketplace process for individuals by enabling them to voice assignment preferences, communicate strengths to units, and identify areas to further develop in preparation for a desired position.

Method

Survey Development

The survey contained a Privacy Act Statement and a Project Summary, which provided information about the survey's purpose, voluntary participation, confidentiality of data, and estimated time needed to complete the survey. The first section contained position and service questions such as time in position, time in rank, and Branch/Functional Area (FA). See Appendix A for complete list of position and service items, along with demographic items. The second section consisted of a Branch/FA-specific duty list[1] based on their Branch/FA input in Section 1.

---

[1] Analyses of Branch/FA duty lists was not a focus of this report and are presented in a subsequent report. The survey consisted of a series of items that all participants rated in terms of importance: four common officer duties, between four and 22 branch/functional area-specific duties. Field grade officers and company-grade officers in branches/FAs without publicly available ICTLs were provided with 10 free response textboxes and asked to list up to ten of their most important tasks rather than rating specific duties.

Please see Appendix B for complete Area of Concentration (AOC)-specific duty lists. In the third section, participants were presented with the complete 198 KSBs from the ATAF and asked to rate the importance of each for performance in their position. See Appendix C for complete ATAF and rating scale. Following importance ratings of the 198 KSBs, participants responded to several demographic items.

Table 1

Overview of Army-wide Job Analysis Sections and Content

Section I: Service and Position Background items (9 Items)	
- Rank - Time in Rank - Time in Service - Time in Position - Army Component (e.g., Active)	- Current Position Title - Billeted Position Title - Immaterial Position - Branch/Functional Area
Section II: Position-specific Item Importance Ratings	
O1-O3 positions with a specific duty list: - Four Common Officer Items 4-22 Branch/Functional Area-specific Duty Items - Three Open-ended "Other Duties" Optional Items	**O4-O5 positions and O1-O3 positions without a specific duty list:** - Four Common Officer Items - One Broad Position Duty Item - Ten Open-ended Most Critical Duties/Tasks
Section III: ATAF KSB Importance Ratings (198 Items)	
Importance Ratings of Complete ATAF 198 KSBs	
Section IV: Demographics (4 Items)	
- Gender - Origin/Ancestry - Race - Age	

Duty List Development

Following the task inventory approach, duty lists were developed for various positions that would be rated on importance by incumbents (Wyse, 2019). Note that the current report focuses on KSB requirements for Army officers, while another report will provide analysis of the duty lists (Royston et al., 2022).

These duty lists were developed by obtaining ICTLs for available positions from the Central Army Registry (CAR). ICTLs outline the specific tasks and responsibilities for officers in a particular position. Because ICTLs tend to show wide variation in the level of detail in each task description, a team of three industrial-organizational psychologists reviewed each position's ICTL and aggregated the tasks to the duty level by identifying clusters of job tasks that were directed at general job goals. Aggregating tasks to the duty level provided a more meaningful unit of rating for incumbents. An active-duty Subject Matter Expert (SME) from ATMTF also determined what officer AOCs should share duty lists due to similarity in job tasks. Following generation of these duty lists and establishing agreement between all researchers, each list was reviewed by an additional ATMTF SME to ensure that all tasks from each ICTL was appropriately represented in their respective duty list and that language was appropriate for Army respondents. These duty lists were then distributed to their respective branch/functional area representatives to confirm that no lists contained any operationally sensitive or classified information.

When ICTLs were not available in the CAR, incumbents were presented with ten open-ended items in which they were instructed to list the most critical duties or tasks associated with their position. Additionally, field grade officers, or those holding the rank of either Major (MAJ) or Lieutenant Colonel (LTC), were also presented with open-ended items to insert their duties as it was determined that duties at the field grade level tend not to be as focused and standardized as those at the company grade level, or those in the ranks of Second Lieutenant (2LT), First Lieutenant (1LT), or Captain (CPT). For these open-ended task items, topic modeling, a method of text mining, would be used to extract duties from participant responses. For a complete list of specifying which company grade positions responded to specific duty lists versus open-ended critical duty inputs, please refer to Table 2.

Table 2

Officer Branch and Functional Area Summary of Duty Ratings or Top Ten Duty Inputs

Branch	O1-O3 Duty List	O1-O3 Top Ten Critical Duties	O4-O5 Top Ten Critical Duties
Air Defense Artillery (AD)	X		X
Adjutant General (AG)	X		X
Armor (AR)	X		X
Aviation (AV)	X		X
Chemical Corps (CM)	X		X
Cyber (CY)	X		X
Engineer Regiment (EN)	X		X
Field Artillery (FA)	X		X
Financial Management Corps (FM)	X		X
Infantry (IN)	X		X
Logistics (LG)	X		X
Military Intelligence (MI)	X		X
Military Police (MP)	X		X
Medical Service Corps (MS)		X	X
Ordnance Corps (OD)	X		X
Quartermaster Corps (QM)	X		X
Signal Corps (SC)	X		X
Transportation Corps (TC)	X		X

Functional Area	O1-O3 Duty List	O1-O3 Top Ten Critical Duties	O4-O5 Top Ten Critical Duties
Acquisition Corps (FA51)		X	X
Force Management (FA50)	X		X
Foreign Area Officer (FA48)		X	X
Information Network Engineer (FA26)		X	X
Information Operations (FA30)	X		X
Nuclear & Counter-Proliferation (FA52)		X	X
Operations Research/System Analysis (FA49)		X	X
Public Affairs (FA46)		X	X
Simulation Operations (FA57)		X	X
Space Operations (FA40)	X		X
Strategic Intelligence (FA34)	X		X
Strategist (FA59)		X	X

Note: The two AOCs within Ordnance Corps (89E – Explosive Ordnance Disposal Officer and 91A Materiel Maintenance and Munitions Management Officers) responded to separate duty lists based on their AOC. 91A individuals shared a duty list with Logistics, Transportation, and Quartermaster, which was composed of general duties performed by individuals across these AOCs.

Sample Approach

The target population for the survey was Active Duty, O1-O5 Officers. The initial pool was exported from the Army Vantage personnel database on 29 September 2021. The initial sample of 74,138 was further reduced using the following process. First, to ensure that the sample included only Officers in Active Duty status, Officers who were either students, entering into a position, or transitioning out of the Army were screened out of the sample.[2] This reduced the

---

[2] Within the Army Vantage database, Active Duty Officers have Position Numbers indicating their position status.

initial sample to 51,534. Second, six additional officers were removed due to possessing a Primary AOC of "Duties Unassigned or "Newly commissioned officer awaiting entry on active duty for officer basic course attendance", which reduced the sample pool to 51,528. Finally, given that an online, invitation was going to be used to administer the survey, an additional 356 officers were dropped because they lacked a DOD email address. The final sample pool consisted of 51,173 officers. We planned to draw a stratified sample, however, as this job analysis received approval to sample up to 53,750, we proceeded with sending email invitations to 51,173 officers who passed screening requirements. Table 3 provides a summary of cases by rank.

Table 3

Officer Sample Pool by Rank

Rank	Email Invitation Sample Pool
O1/O2	14,287
O3	18,394
O4	11,612
O5	6,879
Total	51,172

These remaining 51,172 individuals in the sample pool were then asked to participate in the survey via email sent directly to their DOD email address. Due to somewhat low response rates to the email invitation after approximately 4 weeks of administration ($n = 2,750$ complete responses),[3] ARI received Institutional Review Board (IRB) approval on 3 Dec. 2021 to create an open link to the survey, which resulted in an additional 687 complete responses, for a total of 3,437 complete responses. For Officers, the Army-wide job analysis survey was administered from 4 November 2021 to 31 March 2022 (email invitation from 4 November 2021 to 31 March 2022 and open link survey from 3 December 2021 to 31 March 2022).

Data Cleaning

A multistep process was used to clean the final response dataset. For those that completed the open-link survey, 367 duplicate cases were dropped for individuals who had already responded to the initial email invitation survey. After removing these duplicate responses, we used a multiple phases approach for data cleaning, detecting careless responders (Bowling et al., 2018), and ensuring data were of high quality. First, 45 participants who completed the survey were removed because they did not respond to at least 80% of KSB ratings. Second, participants were removed because they were highly unlikely to have read the items using a survey time analysis, in which participants were removed if they completed the survey unrealistically quickly. Previous research suggests that two-seconds per question tends to be an effective cut-off and converges well with other measures of careless responding (Bowling et al., 2018; DeSimone et al., 2015). Consequently, 36 participants were removed because they completed the survey in

---

[3] Survey administration coincided with Army's transition to new @army.mil email addresses and began transition to A365, which may have led to a lower response rate.

less than seven minutes (DeSimone et al., 2015; as there are roughly 220 items on this questionnaire, depending on number of Branch/FA-specific duty list items).

The final hurdle entailed a statistical approach to detect individuals who showed little, if any variance across many items, which is often indicative of insufficient effort responding (e.g., selected "Extremely Important" across an unusually high number of consecutive items). This analysis used intra-individual response variability (IRV), which provides an individual-level variance or standard deviation of responses across consecutive item responses. Very low IRV scores indicate individuals who provide straight-line responses (e.g., select 'Extremely Important' on most or all items), while individuals with exceptionally high IRV scores may represent highly random responses (Dunn et al., 2018; Marjanovic et al., 2015). This approach has shown to be effective when items in a survey represent several different constructs and contain both positively and negatively worded items (Schroeders et al., 2021). Because including too many items in calculating an IRV index score reduces the sensitivity of the index, it is advised to calculate an IRV index on between 50 and 150 items (Dunn et al., 2018). Further, it is recommended that IRV indexes be calculated in the latter sections of a survey because insufficient effort responding "is more likely to occur later in questionnaires as participants become bored or frustrated and develop strategies to complete the questionnaire as quickly as possible" (Dunn et al., 2018, p. 118). Further, Dunn et al. (2018) point out that calculating IRV indexes in the latter sections of a survey is a strength over insufficient effort response calculations, such as the even-odd consistency index because these forms are "calculated using responses to items that appear early, where insufficient effort responding (IER) is less likely to occur. As such, the ratio of the number of responses for which there was IER to the number of responses to which there was attentive responding may be small, creating a degree of insensitivity in the index" (p. 118). We calculated IRV index scores based on participant responses to the last 100 KSB importance ratings, as this represents roughly half of the ATAF KSBs. Using the last 100 KSB ratings in the IRV index calculation was based on previous research suggesting that insufficient effort responding tends to occur more frequently towards the end of a survey as participants grow bored or frustrated (Dunn et al., 2018). Individuals with IRV index scores further than three standard deviations away from the mean IRV index score ($M = 1.45$, $SD = 0.37$) were removed from analysis. Consequently, 68 participants were removed because they either lacked variability (63 cases) or too much variability (5 cases).

Following collection of survey responses and data cleaning procedures, the final sample consisted of 3,267 officers. The final analytic dataset included officers who met the following inclusion criteria: (a) they completed at least 80% of KSB importance ratings, (b) they are currently serving as 2LT/1LTs, CPTs, MAJs, or LTCs, and (c) they met quality control analyses described in the data cleaning procedures.

Participants

Table 4 provides a comparison of the demographic breakdown of the final sample and the Officer population from the 2020 Annual Demographics Profile of the Military Community (Department of Defense, 2021).

Table 4

Comparison of Sample and 2020 Annual Demographics Profile

Demographic	Final Survey Sample and Proportions	2020 Annual Demographics Profile and Proportions (O1-O6 individuals)
Gender		
Male	2,603 (79.7%)	63,102 (80.3%)
Female	593 (18.2%)	15,524 (19.7%)
Gender Not Reported	71 (2.1%)	-
Age Range		
21-25	230 (7.0%)	13,687 (17.4%)
26-30	544 (16.7%)	19,119 (24.3%)
31-35	614 (18.8%)	14,684 (18.6%)
36-40	766 (23.4%)	12,753 (16.2%)
41-45	690 (21.1%)	18,419 (23.4%)[4]
46+	358 (11.0%)	
Age Not Reported	65 (1.9%)	-
Ethnicity		
Hispanic or Latino	314 (9.6%)	6,452 (8.2%)
Not Hispanic or Latino	2,860 (87.5%)	72,175 (91.8%)
Ethnicity Not Reported	93 (2.8%)	-
Race		
American Indian or Alaska Native	13 (0.4%)	402 (0.5%)
Asian	124 (3.8%)	5,342 (6.8%)
Black or African American	277 (8.5%)	8,995 (11.4%)
Native Hawaiian or Other Pacific Islander	17 (0.5%)	483 (0.6%)
White	2,504 (76.6%)	57,925 (73.7%)
More Than One Race	276 (8.4%)	-
Race Not Reported	56 (1.7%)	-

Note: The 2020 Annual Demographics Profile includes O6 individuals in the same category as O4 and O5 individuals when reporting demographic data. The Annual Demographics Profile also includes students in counts and percentages.

In terms of gender, 79.7% (n = 2,603) of officers were male, while 18.2% (n = 593) were female. A total of 69 officers did not report their gender. The proportion of individuals is similar to those reported in the 2020 Annual Demographics Profile of the Military Community, in which 80.3% of officers ranked O1-O6 were male and 19.7% were female (Department of Defense, 2021).

In terms of age, 7.0% (n = 230) of officers were 21-25 years old, 16.7% (n = 544) were 26-30 years old, 18.8% (n = 614) were 31-35 years old, 23.4% (n = 766) were 36-40 years old, 21.1% (n = 690) were 41-45 years old, and 11.0% (n = 358) were 46 or older. A total of 65 officers did not report their age. Overall, there were some differences between the proportion of ages seen in this study versus those reported in the 2020 Annual Demographics Profile of the Military

---

[4] 2020 Annual Demographics Profile of the Military Community reports the highest age category as 41+.

Community. There was a smaller proportion of officers aged 21-30 in the current sample than in the 2020 Annual Demographics Profile, while officers aged 31-35 showed a similar proportion. The current sample showed a higher proportion of officers aged 36 or older than what was reported in the 2020 Annual Demographics Profile.

Regarding ethnicity and race, 9.6% ($n = 314$) of officers were of Hispanic, Latino, or Spanish origin or ancestry, while 93 individuals did not respond to this item. A total of 0.4% ($n = 13$) of officers reported their race as American Indian and Alaska Native while 8.5% ($n = 277$) were Black or African American. A further 3.8% ($n = 124$) were Asian while 76.6% ($n = 2,504$) were White. A total of 0.5% ($n = 17$) were Native Hawaiian or Other Pacific Islander. A total of 8.4% ($n = 276$) reported more than one race, while 1.7% ($n = 56$) individuals in this sample did not report their race. Comparing these percentages to those reported in the 2020 Annual Demographics Profile, the current sample showed similar proportions of American Indian and Alaska Natives, Native Hawaiian and Pacific Islanders, and White participants as the 2020 report. Asian and Black or African American participants in this study showed a slightly lower proportion as the 2020 report.

Officer Service and Rank Details

Army officers varied by rank, number of years in their current rank, and number of years in their current position, as shown in Tables 3, 4, and 5. The sample was nearly perfectly split between field and company officers. Approximately 49.3% ($n = 1,610$) of participants were company-grade officers and 50.6% ($n = 1,654$) were field-grade officers. CPTs represented the largest group of officers at 34.7% ($n = 1,135$), followed by MAJs who composed 28.0% ($n = 916$) of the sample. First/Second Lieutenants represented the smallest group at 14.6% ($n = 475$) of the sample. See Table 3.

Table 5
Overall Officers by Rank and Rank Group (Frequencies) and Comparison to Sample Pool

Officer Rank Group	Rank	n	%	N Sample Pool	Response Rate
Field Grade	Lieutenant Colonel (LTC)	738	22.6%	6,879	10.7%
	Major (MAJ)	916	28.0%	11,612	7.9%
Company Grade	Captain (CPT)	1,135	34.7%	18,394	6.2%
	First/Second Lieutenant (1LT/2LT)	475	14.6%	14,287	3.3%
	Total	3,264	100	51,172	6.4%

Note: Three individuals did not respond to this item. Sample pool totals are in reference to individuals who received an invitation after screening.

In terms of officers' time in current position, 24.7% ($n = 807$) of the sample indicated that they were in their current position for less than 6 months, while 28.6% *($n = 934$)* indicated they had been in their current position for more than 6 months, but less than one year. A total of 30.7% ($n = 1,002$) were in their current position for more than one year but less than two years and 11.8% ($n = 387$) were in their current position for at least two years but less than three years. Only 4.0%

($n = 131$) of the sample indicated that they were in their current position for more than three years. See Table 4 for more information.

Table 6

Overall Officers' Total Time in Current Position (Frequencies)

Rank	Years in Current Job				
	<6 months n (row%)	6 months to <1 year n (row%)	1 to <2 n (row%)	2 to <3 n (row%)	3 or more n (row%)
Lieutenant Colonel (LTC)	147 (20.0%)	145 (19.7%)	259 (35.2%)	134 (18.2%)	51 (6.9%)
Major (MAJ)	209 (22.8%)	250 (27.3%)	292 (31.9%)	125 (13.6%)	40 (4.4%)
Captain (CPT)	280 (24.8%)	359 (31.7%)	346 (30.6%)	108 (9.5%)	38 (3.4%)
Lieutenant (1LT/2LT)	171 (36.0%)	179 (37.7%)	104 (21.9%)	20 (4.2%)	1 (0.2%)
Total n (%)	807 (24.8%)	933 (28.6%)	1,001 (30.7%)	387 (11.9%)	130 (4.0%)

Note. Nine individuals did not respond to this item.

In terms of officers' time in current rank, 5.4% ($n = 175$) had held their current rank for less than 6 months, while 9.2% ($n = 300$) had been in their current rank for more than 6 months, but less than one year. Another 20.5% ($n = 671$) were in their current rank for more than one year but less than two years while 19.4% ($n = 635$) were in their current rank for at least two years but less than three years. Finally, 45% ($n = 1,469$) were in their current rank for more than three years. See Table 5 for more information.

Table 7

Overall Officers' Time in Current Rank (Frequencies)

Rank	Time in Current Rank				
	<6 months n (row%)	6 months to <1 year n (row%)	1 to <2 n (row%)	2 to <3 n (row%)	3 or more n (row%)
Lieutenant Colonel (LTC)	57 (7.8%)	77 (10.5%)	137 (18.7%)	159 (21.8%)	301 (41.2%)
Major (MAJ)	45 (4.9%)	47 (5.1%)	138 (15.1%)	199 (21.8%)	484 (53.0%)
Captain (CPT)	17 (1.5%)	72 (6.4%)	149 (13.2%)	218 (19.3%)	674 (59.6%)
First/Second Lieutenant (1LT/2LT)	56 (11.8%)	104 (22.0%)	246 (52.0%)	59 (12.5%)	8 (1.7%)
Total n (%)	175 (5.4%)	300 (9.2%)	670 (20.6%)	635 (19.6%)	1,467 (45.2%)

Note. Twenty individuals did not respond to this item.

Branch Officers

Branches represent career fields that officers enter upon commissioning or when transferring into the Logistics Branch from Ordnance, Quartermaster, or Transportation Corps upon attaining the rank of CPT (Department of the Army, 2014). Table 6 summarizes the branch officers included in this sample.

Table 8

Branch Officers by Rank (Frequencies)

Branch	1LT/2LT n (row %)	CPT n (row %)	MAJ n (row %)	LTC n (row %)	Total n
Air Defense Artillery (AD)	12 (19.0%)	27 (42.9%)	7 (11.1%)	17 (27.0%)	63
Adjutant General (AG)	39 (20.4%)	84 (44.0%)	38 (19.9%)	30 (15.7%)	191
Armor (AR)	29 (20.4%)	52 (36.6%)	32 (22.5%)	29 (20.4%)	142
Aviation (AV)	12 (11.7%)	34 (32.6%)	25 (24.3%)	32 (31.1%)	103
Chemical Corps (CM)	25 (32.9%)	31 (40.8%)	16 (21.1%)	4 (5.3%)	76
Cyber (CY)	9 (19.6%)	15 (32.6%)	12 (26.1%)	10 (21.7%	46
Engineer Regiment (EN)	31 (20.0%)	67 (43.2%)	25 (16.1%)	32 (20.6%)	155
Field Artillery (FA)	29 (19.2%)	60 (39.7%)	35 (23.2%)	27 (17.9%)	151
Financial Management Corps (FM)	7 (13.2%)	23 (43.4%)	16 (30.2%)	7 (13.2%)	53
Infantry (IN)	58 (25.4%)	79 (34.6%)	52 (22.8%)	39 (17.1%)	228
Logistics (LG)	17 (5.6%)	132 (43.7%)	82 (27.2%)	71 (23.5%)	302
Military Intelligence (MI)	40 (16.2%)	112 (45.3%)	47 (19.0%)	48 (19.4%)	247
Military Police (MP)	18 (19.4%)	34 (36.6%)	22 (23.7%)	19 (20.4%)	93
Medical Service Corps (MS)	9 (9.4%)	34 (35.4%)	38 (39.6%)	15 (15.6%)	96
Explosive Ordnance Disposal Corps	4 (11.8%)	14 (41.2%)	11 (32.4%)	5 (14.7%)	34
Materiel Maintenance and Munitions Management	32 (100.0%)	-	-	-	32
Quartermaster Corps (QM)	21 (100.0%)	-	-	-	21
Signal Corps (SC)	27 (19.1%)	57 (40.4%)	33 (23.4%)	24 (17.0%)	141
Transportation Corps (TC)	27 (96.4%)	1 (3.6%)	-	-	28
TOTAL n (%)	446 (20.3%)	856 (38.9%)	490 (22.3%)	408 (18.5%)	2,200

Note: AG = Adjutant General Corps includes 2 Army Music participants; CM = CBRN. Note that few officers above the rank of 1LT/2LT remain in the Ordnance, Quartermaster, or Transportation Corps as these officers typically transfer into the Logistics Branch. Additionally, although the Ordnance Corps is composed of both 89E -Explosive Ordnance Disposal officers and 91A – Materiel Maintenance and Munitions Management officers, these officers show significant differences in their work duties, as well as having different career managers throughout the course of their careers. While both AOCs attend Logistics Captain Career Course and become Logistics Officers, EOD officers will continue to be managed differently than other Logisticians

Functional Area Officers

Officers are assigned to a basic branch when first entering active duty and after four years of commissioned service, they can then voluntarily apply to transfer into another branch or into a FA. These FAs are made up of officers with technical specialties and specific skills and frequently requires focused training, education, and experience. Because application to a FA often occurs near the time that officers are eligible for promotion to CPT, most of the sample of

FA officers is composed of CPTs to LTCs. Table 7 summarizes the FA officers included in this sample.

Table 9

Functional Area Officers by Rank (Frequencies)

Functional Area	1LT/2LT *n* (row %)	CPT *n* (row %)	MAJ *n* (row %)	LTC *n* (row %)	Total *n*
Acquisition Corps (FA51)	-	4 (5.8%)	37 (53.6%)	28 (40.6%)	69
Force Management (FA50)	-	3 (15.0%)	7 (35.0%)	10 (50.0%)	20
Foreign Area Officer (FA48)	-	3 (7.9%)	16 (42.1%)	19 (50.0%)	38
Information Network Engineer (FA26)	-	13 (29.5%)	21 (47.7%)	10 (22.7%)	44
Information Operations (FA30)	-	3 (13.6%)	8 (36.4%)	11 (50.0%)	22
Nuclear & Counter-Proliferation (FA52)	-	2 (6.5%)	15 (48.4%)	14 (45.2%)	31
Operations Research/System Analysis (FA49)	-	4 (10.0%)	23 (57.5%)	13 (32.5%)	40
Public Affairs (FA46)	-	4 (16.7%)	15 (62.5%)	5 (20.8%)	24
Simulation Operations (FA57)	-	0 (0.0%)	9 (40.9%)	13 (59.1%)	22
Space Operations (FA40)	-	9 (332.3%)	11 (40.7%)	7 (25.9%)	27
Strategic Intelligence (FA34)	-	2 (14.3%)	7 (50.0%)	5 (35.7%)	14
Strategic Plans and Policy (FA59)	-	0 (0.0%)	33 (55.0%)	27 (45.0%)	60
TOTAL *n* (%)	-	47 (11.3%)	202 (49.1%)	162 (39.4%)	411

Note: FA26 includes AOC 26A Network Systems Engineering and AOC 26B Information Systems Engineering

Procedure

The Army-wide Job Analysis was administered online using software provided by Army Analytics Group and was open from 4 November 2021 to 31 March 2022. During the time the survey was open, participants who had not completed the survey received a weekly reminder email for the first eight weeks of administration until the open-link was created, then biweekly reminders for the rest of the time the survey was open.

The survey contained a Privacy Act Statement and a Project Summary, which provided information about the survey's purpose, voluntary participation, confidentiality of data, and an estimate of the time needed to complete the survey. From there, participants responded to position and service questions (e.g., time in position, time in rank, AOC), then responded to a Branch/FA-specific duty list[5] based on their AOC input. From there, participants were then presented with the complete 198 KSBs from the Army Talent Attribute Framework (ATAF) KSB list and asked to rate the importance of each for performance in their position. Following importance ratings of the 198 KSBs, participants responded to several demographic items.

---

[5] Analyses of Branch/FA duty lists was not a focus of this report and are presented in a subsequent report. The survey consisted of a series of items that all participants rated in terms of importance: four common officer duties, between four and 22 branch/functional area-specific duties. Field grade officers and company-grade officers in branches/FAs without publicly available ICTLs were provided with 10 free response textboxes and asked to list up to ten of their most important tasks rather than rating specific duties.

Following data cleaning procedures, we assessed KSB requirements for officers by assessing the importance ratings for overall officers, by rank, and by Branch/FA. When there were sufficient responses (i.e., at least 30 responses or 15% response rate), we were further able to report KSB importance ratings by rank within specific Branches/FAs. Note that KSB ratings presented throughout this report have been variance weighted, such that KSBs with smaller standard deviations (which may indicate a higher level of agreement) would be given more weight in terms of its importance ranking. This weighted mean is calculated by inverting the standard deviation and multiplies that value by its original mean.[6] Note that in some cases, KSBs with a high mean rating and low standard deviation resulted in a weighted mean above the scale anchor maximum (0 "Not at all important" to 4 "Extremely Important"). Inverted variance weighted averages are used quite commonly in meta-analytic studies where studies with greater precision are given greater weight (e.g., Hunter & Schmidt, 2004; Lee et al., 2016).

Results

Army-wide Officer KSB Importance Ratings

Officers rated the importance of all 198 ATAF KSBs (Royston et al., 2022) for successful performance in their current job position. Because of the high number of KSBs, the body of this report provides the Top 30 most important KSBs for officers overall, as well as by officer rank, regardless of Branch/FA. Appendix A provides all 198 KSB importance ratings for officers overall, as well as by rank, regardless of Branch/FA. Appendix B provides importance ratings for all 198 KSBs by Branch/FA. Appendix C provides the 30 highest rated KSBs for each rank within each Branch/FA where there were sufficient responses (i.e., at least 30 responses or 15% response rate). When there were insufficient responses to report rank specific KSBs, we provide the Top 30 KSBs for the overall Branch/FA instead. Reporting 30 KSBs aligns with guidance provided to Branch/FA proponents when developing storyboards, in which proponents were instructed to identify up to 30 KSBs considered to be the most important for success in each position.

Observing KSB importance ratings across the Army, regardless of rank or branch/FA, communication is one of the most important attributes for Soldiers. Four of the top six KSBs were from the Talent Domain of Communication (Communication Ability, Communicator, Written Communication, and Oral Communication). While Army-wide ratings do not provide a very nuanced examination of Soldier critical attributes, this overview provides information on attributes expected of the overall officer population. See Table 8 for the Top 30 most important KSBs for officers Army-wide. As mentioned in the Procedure section above, KSB ratings in the following tables throughout this report represent variance weighted means (M^*), in which KSBs that had smaller standard deviations (which may represent a higher level of agreement) would be given more weight in terms of its importance ranking.

---

[6] Weighted mean formula: $(M^*) = (2\text{-}SD)^*M$

Table 10

Army-wide Officer Top KSBs

KSB Importance Rank	KSB	N	M*	SD
1	Communication Ability	3,252	4.40	0.73
2	Communicator	3,254	4.25	0.76
3	Dependability	3,235	4.04	0.80
4	Sound Judgement	3,232	4.03	0.81
5	Oral Communication Skill	3,239	3.98	0.81
6	Written Communication	3,247	3.94	0.82
7	Reading Comprehension	3,247	3.81	0.85
8	Active Listening	3,246	3.77	0.85
9	Attentiveness	3,251	3.77	0.83
10	Mental Agility	3,246	3.74	0.86
11	Self-Management	3,227	3.73	0.87
12	Cooperation/Teamwork	3,238	3.69	0.87
13	Critical Thinking	3,247	3.69	0.88
14	Adaptability	3,222	3.68	0.88
15	Coordination	3,238	3.63	0.88
16	General Cognitive Aptitude	3,243	3.62	0.86
17	Problem Solver	3,250	3.61	0.90
18	Analytical Thinking	3,246	3.56	0.90
19	Time Management	3,196	3.53	0.91
20	Detail-Focused and Precise	3,236	3.49	0.89
21	Analyzes and Organizes Information to Create Knowledge	3,237	3.48	0.91
22	Active Learning	3,244	3.46	0.91
23	Cognitive Flexibility	3,238	3.46	0.93
24	Interpersonal Tact	3,238	3.45	0.91
25	Problem Sensitivity	3,235	3.43	0.92
26	Oral and Nonverbal Comprehension	3,243	3.42	0.92
27	Stress Tolerance	3,231	3.39	0.95
28	Sustains a Climate of Trust	3,125	3.36	0.96
29	Cooperation	3,239	3.35	0.92
30	Resilience	3,232	3.28	0.96

Note: KSB Importance rated on scale of 0 = "Not Important, 1 = "Somewhat Important", 2 = "Important", 3 = "Very Important", 4 = "Extremely Important". Means have been weighted by inversing variance and then multiplying by original mean value, which provides greater weight to KSBs where there is less variance, and therefore a higher level of agreement on the importance rating. Note that in some cases, this weighting produces weighted mean ratings above the scale minimum and maximum scale anchors.

Rank-specific Army-wide Officer KSBs

Having observed overall Army KSB importance ratings, Tables 10-13 present the Top 30 highest-rated KSBs by officer rank regardless of branch/FA. For full ratings of each KSB according to rank, please see Appendix A.

Army-wide Top KSB Ratings for First and Second Lieutenants

As shown in Table 11, rather than Communication Ability being rated highest as seen in the Army-wide KSB importance ratings, Stress Tolerance and Dependability were the most highly rated KSBs for 1LT/2LTs. These individuals are likely new to their leadership position and still learning position expectations.

Army-wide Top KSB Ratings for Captains

As shown in Table 12, Captains (CPTs) shared 21 of their 30 highest rated KSBs with 1LT/2LTs. Communication Ability and Communicator emerge as the top two highest rated KSBs for CPTs and remain the highest rated KSBs through all ranks surveyed. Additionally, new Top 30 most highly rated KSBs for CPTs included several new interpersonal and teamwork-related attributes such as Interpersonal Tact, Oral and Nonverbal Comprehension, and Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps. Cognitive attributes also emerged in the highest rated KSBs for CPTs, including Analytic Thinking, Active Learning, Problem Sensitivity, Cognitive Flexibility, and Analyzes and Organizes Information to Create Knowledge. This may be due to CPTs being required to participate in more problem solving, engage in critical thinking activities and responsibilities, and must be effective at communicating plans and goals given their higher rank (see Table 12 for emerging important KSBs in bold).

Army-wide Top KSB Ratings for Majors

As shown in Table 13, Majors (MAJs) shared 28 of their Top 30 highest rated KSBs with 1LT/2LTs and CPTs, which was expected due to officers building on the attributes gained in the lower ranks. Communication Ability remains the top-rated KSB at the MAJ level. Two new KSBs appeared in the Top 30 KSBs for MAJs – Perceptive and Creative Problem Solving & Innovation. These KSBs may emerge for field grade officers due to increased responsibility and involvement in decision making processes. See Table 13 emerging important KSBs in bold.

Army-wide Top KSB Ratings for Lieutenant Colonels

As shown in Table 14, LTCs shared 29 of their highest rated 30 KSBs with lower ranks. Notably, both KSBs that initially appeared at the Major level (Perceptive and Creative Problem Solving and Innovation) remained in the Top 30 for LTCs. Only Army Values emerged as a new important KSB for LTCs. This may be due to LTCs being expected to be examples of loyalty, service, and integrity, and should instill these values and principles in their subordinates. See Table 14 for LTC Top 30 KSBs are presented, with Army Values being bolded as a new top KSB for LTCs.

Table 11

Top KSBs for 1LT/2LTs, regardless of Branch/FA

KSB Importance Rank	KSB	N	M*	SD
1	Stress Tolerance	467	3.76	0.88
2	Dependability	464	3.70	0.88
3	Communication Ability	469	3.69	0.88
4	Communicator	470	3.65	0.88
5	Time Management	457	3.62	0.90
6	Sound Judgement	470	3.53	0.91
7	Adaptability	464	3.52	0.93
8	Attentiveness	473	3.44	0.91
9	Detail-Focused and Precise	469	3.42	0.92
10	Oral Communication Skill	468	3.38	0.93
11	Self-Management	462	3.34	0.96
12	Coordination	469	3.34	0.94
13	Task Planning and Management	456	3.29	0.94
14	Active Listening	469	3.27	0.94
15	Cooperation	468	3.26	0.95
16	Cooperation/Teamwork	469	3.25	0.96
17	Mental Agility	471	3.25	0.96
18	Self-Control	465	3.24	0.95
19	Initiative	466	3.22	0.96
20	Delegating	451	3.22	0.98
21	Problem Solver	471	3.20	1.00
22	Resilience	466	3.19	0.99
23	Processes Information and Data	470	3.18	0.98
24	Written Communication	470	3.18	0.97
25	Reading Comprehension	469	3.18	0.97
26	Critical Thinking	469	3.14	1.01
27	Situational Awareness	464	3.13	1.02
28	Multi-Tasking	473	3.12	1.01
29	Emotional Control	470	3.10	0.99
30	Sustains a Climate of Trust	444	3.06	1.03

Note: KSB Importance rated on scale of 0 = "Not Important, 1 = "Somewhat Important", 2 = "Important", 3 = "Very Important", 4 = "Extremely Important". Means have been weighted by inversing variance and then multiplying by original mean value, which provides greater weight to KSBs where there is less variance, and therefore a higher level of agreement on the importance rating. Note that in some cases, this weighting produces weighted mean ratings above the scale minimum and maximum scale anchors.

Table 12

Top KSBs for CPTs, regardless of Branch/FA

KSB Importance Rank	KSB	N	M*	SD
1	Communication Ability	1,133	4.47	0.73
2	Communicator	1,131	4.26	0.77
3	Dependability	1,123	4.09	0.80
4	Sound Judgement	1,121	4.08	0.81
5	Oral Communication Skill	1,123	4.04	0.80
6	Written Communication	1,127	3.91	0.83
7	Self-Management	1,118	3.87	0.85
8	Reading Comprehension	1,129	3.83	0.83
9	Adaptability	1,121	3.77	0.87
10	Attentiveness	1,129	3.77	0.83
11	Active Listening	1,125	3.77	0.86
12	Mental Agility	1,127	3.69	0.87
13	Cooperation/Teamwork	1,122	3.66	0.88
14	Stress Tolerance	1,122	3.65	0.90
15	Coordination	1,124	3.61	0.89
16	**Interpersonal Tact**	**1,121**	**3.60**	**0.89**
17	Critical Thinking	1,127	3.59	0.90
18	Problem Solver	1,128	3.56	0.91
19	Time Management	1,107	3.55	0.92
20	Detail-Focused and Precise	1,122	3.55	0.88
21	**General Cognitive Aptitude**	**1,123**	**3.54**	**0.88**
22	**Analytical Thinking**	**1,128**	**3.52**	**0.90**
23	**Active Learning**	**1,127**	**3.48**	**0.91**
24	Resilience	1,124	3.47	0.93
25	**Oral and Nonverbal Comprehension**	**1,127**	**3.45**	**0.91**
26	**Analyzes and Organizes Information to Create Knowledge**	**1,119**	**3.42**	**0.92**
27	**Cognitive Flexibility**	**1,123**	**3.42**	**0.93**
28	**Problem Sensitivity**	**1,117**	**3.41**	**0.93**
29	**Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps**	**1,118**	**3.33**	**0.95**
30	Sustains a Climate of Trust	1,081	3.33	0.98

Note: Bolded KSBs indicate newly emergent KSBs at this rank. KSB Importance rated on scale of 0 = "Not Important, 1 = "Somewhat Important", 2 = "Important", 3 = "Very Important", 4 = "Extremely Important". Means have been weighted by inversing variance and then multiplying by original mean value, which provides greater weight to KSBs where there is less variance, and therefore a higher level of agreement on the importance rating. Note that in some cases, this weighting produces weighted mean ratings above the scale minimum and maximum scale anchors.

Table 13

Top KSBs for MAJs, regardless of Branch/FA

KSB Importance Rank	KSB	*N*	*M**	*SD*
1	Communication Ability	915	4.38	0.73
2	Communicator	913	4.25	0.75
3	Written Communication	914	4.09	0.79
4	Dependability	911	4.02	0.79
5	Oral Communication Skill	909	4.01	0.80
6	Sound Judgement	910	3.96	0.82
7	Reading Comprehension	914	3.95	0.82
8	General Cognitive Aptitude	913	3.85	0.80
9	Mental Agility	912	3.82	0.84
10	Critical Thinking	913	3.80	0.85
11	Attentiveness	912	3.77	0.82
12	Cooperation/Teamwork	908	3.75	0.86
13	Active Listening	913	3.75	0.85
14	Self-Management	909	3.70	0.88
15	Problem Solver	912	3.68	0.87
16	Analytical Thinking	910	3.67	0.88
17	Analyzes and Organizes Information to Create Knowledge	911	3.64	0.87
18	Coordination	906	3.63	0.87
19	Adaptability	905	3.59	0.88
20	Cognitive Flexibility	913	3.53	0.91
21	Detail-Focused and Precise	909	3.52	0.88
22	Active Learning	911	3.51	0.89
23	Oral and Nonverbal Comprehension	907	3.49	0.89
24	Problem Sensitivity	910	3.43	0.92
25	Time Management	899	3.41	0.93
26	Interpersonal Tact	910	3.40	0.91
27	Cooperation	912	3.32	0.91
28	Sustains a Climate of Trust	878	3.30	0.96
29	**Perceptive**	**908**	**3.28**	**0.92**
30	**Creative Problem Solving and Innovation**	**910**	**3.27**	**0.96**

Note: Bolded KSBs indicate newly emergent KSBs at this rank. KSB Importance rated on scale of 0 = "Not Important, 1 = "Somewhat Important", 2 = "Important", 3 = "Very Important", 4 = "Extremely Important". Means have been weighted by inversing variance and then multiplying by original mean value, which provides greater weight to KSBs where there is less variance, and therefore a higher level of agreement on the importance rating. Note that in some cases, this weighting produces weighted mean ratings above the scale minimum and maximum scale anchors.

Table 14

Top KSBs for LTCs, regardless of Branch/FA

KSB Importance Rank	KSB	N	M*	SD
1	Communication Ability	732	4.99	0.61
2	Communicator	737	4.74	0.65
3	Written Communication	733	4.48	0.72
4	Sound Judgement	728	4.48	0.72
5	Oral Communication Skill	736	4.32	0.74
6	Active Listening	736	4.28	0.75
7	Dependability	734	4.25	0.75
8	Critical Thinking	735	4.16	0.79
9	Reading Comprehension	732	4.13	0.79
10	Mental Agility	733	4.12	0.78
11	Attentiveness	734	4.03	0.78
12	Cooperation/Teamwork	736	4.00	0.81
13	General Cognitive Aptitude	736	3.98	0.79
14	Analytical Thinking	734	3.94	0.82
15	Problem Solver	736	3.91	0.83
16	Analyzes and Organizes Information to Create Knowledge	736	3.89	0.82
17	Cognitive Flexibility	732	3.86	0.85
18	Self-Management	735	3.86	0.83
19	Coordination	736	3.86	0.82
20	Perceptive	735	3.81	0.82
21	Problem Sensitivity	733	3.80	0.84
22	Adaptability	729	3.75	0.86
23	Active Learning	735	3.71	0.84
24	Sustains a Climate of Trust	719	3.70	0.89
25	Interpersonal Tact	735	3.70	0.849
26	Oral and Nonverbal Comprehension	736	3.69	0.86
27	**Army Values**	**726**	**3.68**	**0.91**
28	Fosters Teamwork, Cohesion, Cooperation, Loyalty and Esprit de Corps	737	3.62	0.90
29	Creative Problem Solving and Innovation	732	3.61	0.91
30	Time Management	730	3.59	0.89

Note: Bolded KSBs indicate newly emergent KSBs at this rank. KSB Importance rated on scale of 0 = "Not Important, 1 = "Somewhat Important", 2 = "Important", 3 = "Very Important", 4 = "Extremely Important". Means have been weighted by inversing variance and then multiplying by original mean value, which provides greater weight to KSBs where there is less variance, and therefore a higher level of agreement on the importance rating. Note that in some cases, this weighting produces weighted mean ratings above the scale minimum and maximum scale anchors.

Top rated KSBs across Multiple Branches and Functional Areas

Appendix E provides the weighted mean KSB ratings for each of the 30 Branch/FAs, separately. To identify KSBs that are important regardless of Branch/FA, we evaluated the number of times a particular KSB was identified as one of the Top 5 KSBs for a Branch/FA. Table 12 indicates the number of times a KSB was listed in the Top 5 across all 30 branches/FAs assessed.

As was the case with the overall and by Rank analyses, Communication Ability and Communicator were identified as one of the Top 5 KSBs for 15 and 13 Branches, respectively. With regard to the Branch-specific results, all but two listed a KSB related to communication (i.e., Communication Ability or Communicator) within their Top 5 KSBs. The two exceptions were Cyber Warfare (BR17) and Transportation Corps (BR88). Dependability was another attribute that often appeared within the Top 5 KSBs across Basic Branches (10 of 17). With regard to the Functional Area-specific results, there tended to be greater variation in their most highly rated KSBs. A Communication-related KSB (Written Communication) only appeared in the Top 5 KSBs for five of the 12 FAs[7]. Analytic Thinking was another KSB that appeared within the top 5 KSBs for FAs. This greater variation of top KSBs for FAs is likely due to the highly specialized training and work tasks associated with these positions.

Table 15

Highest rated KSBs across Branches

KSB	Number of Branches
Communication Ability	15
Communicator	13
Dependability	10
Sound Judgement	8
Cooperation/Teamwork	5
Coordination	3
Stress Tolerance	3
Written Communication	3
Sustains a Climate of Trust	3
Self-management	2
Oral Communication Skill	2
Mental Agility	2
Active Listening	2
Situational Awareness	2
Basic Computer Skills	2

---

[7] Information Operations (FA30), Space Operations (FA40), Public Affairs (FA46), Research, Development, and Acquisition (FA51), Nuclear and Counterproliferation (FA52), and Strategic Plans and Policy (FA59). Communication-related KSBs did appear within the Top 5 KSBs for Strategic Intelligence (FA34) and Foreign Area Officers (FA48), and Force Managers (FA50).

Table 16

Highest rated KSBs across Functional Areas

KSB	Number of FAs
Analytical Thinking	5
Written Communication	5
Basic Computer Skills	3
Functional Area/Occupation-Specific Knowledge and Skill	3
Self-Management	3
Time Management	3
Analyze Data or Information	2
Basic Mathematics	2
Processes Information and Data	2
Critical Thinking	2
Communicator	2
Cognitive Flexibility	2
Reading Comprehension	2
Oral Communication Skill	2
Strategic Thinking	2

Branch and Functional Area Top KSB Summaries

We also assessed KSB importance ratings by Branch/FA. Given the size and number of tables produced, these Branch/FA-specific KSB tables are not presented in the body of this report, but can be found in Appendix C for reference. To provide an example of how Branch/FA KSB ratings are presented, we provide a high-level summary of KSBs for the Infantry Branch below. Summaries and tables for all Branch/FA-specific KSBs can be found in Appendix C. Note that when there were insufficient responses to report results by rank (i.e., less than 30 responses or less than 15% response rate), we only provide the KSB ratings aggregated by Branch/FA. As with previous tables in this report, the following table represents variance weighted means (*M**), in which KSBs that had smaller standard deviation (which may represent a higher level of agreement) would be given more weight in terms of its importance ranking. Note that in many cases, this resulted in a KSB weighted mean above the scale anchors (0 "Not at all important" to 4 "Extremely Important").

BR11 – Infantry Summary

Top KSBs for Infantry LTs included Adaptability, Communicator, Sound Judgement, Dependability, and Stress Tolerance. While Infantry 1LT/2LTs and CPTs shared 15 of their most highly rated 30 KSBs, new Top 30 KSBs for Infantry CPTs tended to involve more leadership and team development skills, including Team Building, Coordinating Multiple Groups, and Fosters a Team Environment through Cohesion, Cooperation, and Esprit de Corps. Infantry CPTS also require Analytic Thinking, Situational Awareness, and Critical Thinking. Infantry MAJs shared 20 of their Top 30 KSBs with lower ranks. However, several important new KSBs emerged when one became a field grade officer, including those related to understanding the

larger operational picture, e.g., Knowledge of Combined Arms Operations, Knowledge of Processes and Procedures, Systems Thinking, and Organizational Perspective. Infantry MAJs also indicated leadership skills were important such as demonstrating Army Values and Sustains an Environment of Trust, as well as developing cognitive skills such as Verbal Reasoning. LTCs shared 27 of their highest rated KSBs with lower ranks but showed three new top KSBs including Commitment to Serve, Improves the Organization, and Unstructured Problem Solving.

Table 17

BR11 - Infantry Branch – Top 30 KSB Importance Ratings (Weighted Means) by Rank

KSB Rank	1LT/2LT KSBs (N = 28-58)	M*	CPT KSBs (N = 41-78)	M*	MAJ KSBs (N = 26-52)	M*	LTC KSBs (N = 23-39)	M*
1	Adaptability	4.31	Sound Judgement	4.83	Communication Ability	4.60	Communication Ability	5.66
2	Communicator	4.28	Focus	4.66	Communicator	4.45	Communicator	4.80
3	Sound Judgement	4.15	Attentiveness	4.47	Oral Communication Skill	4.35	Dependability	4.70
4	Dependability	3.88	Communication Ability	4.34	Knowledge of Combined Arms Operations	4.30	Coordination	4.61
5	Stress Tolerance	3.80	Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps	4.23	Active Listening	4.30	Army Values	4.58
6	Time Management	3.77	Team Building	4.17	Dependability	4.28	Sound Judgement	4.53
7	Multi-Tasking	3.74	Dependability	4.11	Critical Thinking	4.09	Written Communication	4.53
8	Initiative	3.68	Communicator	4.07	Problem Sensitivity	4.08	Cooperation/Teamwork	4.38
9	Communication Ability	3.66	Stress Tolerance	4.06	Knowledge of Processes and Procedures	4.00	Sustains a Climate of Trust	4.32
10	Self-Management	3.60	Analytical Thinking	4.01	Self-Management	3.94	Reading Comprehension	4.30
11	Mental Agility	3.53	Self-Management	4.00	Written Communication	3.87	Coordinating Multiple Groups	4.19
12	Self-Control	3.51	Structured Problem Solving	3.99	Mental Agility	3.86	Commitment to Serve	4.16
13	Cognitive Flexibility	3.51	Oral Communication Skill	3.97	Systems Thinking	3.82	Team Building	4.14
14	Task Planning and Management	3.46	Active Learning	3.96	Cooperation	3.78	Oral Communication Skill	4.14
15	Emotional Control	3.43	Coordination	3.94	Organizational Perspective	3.78	Critical Thinking	4.14
16	Attentiveness	3.43	Problem Solver	3.91	Oral and Nonverbal Comprehension	3.78	Adaptability	4.12
17	Critical Thinking	3.40	Mental Agility	3.90	Attentiveness	3.77	Analyzes and Organizes Information to Create Knowledge	4.08
18	Coordination	3.37	Coordinating Multiple Groups	3.90	Analyzes and Organizes Information to Create Knowledge	3.76	Mental Agility	4.03
19	Cooperation	3.37	Situational Awareness	3.85	Army Values	3.74	Problem Sensitivity	4.03
20	Problem Solver	3.36	Critical Thinking	3.84	Sound Judgement	3.72	Problem Solver	3.99
21	Military And Professional Bearing	3.35	Team Development	3.83	Sustains a Climate of Trust	3.71	Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps	3.99
22	Persistence	3.35	Emotional Control	3.82	Coordinating Multiple Groups	3.70	Military And Professional Bearing	3.99
23	Selflessness	3.34	Interpersonal Tact	3.79	Active Learning	3.70	Cooperation	3.97
24	Problem Sensitivity	3.32	Reading Comprehension	3.76	General Cognitive Aptitude	3.68	General Cognitive Aptitude	3.96
25	Oral Communication Skill	3.31	Cognitive Flexibility	3.76	Problem Solver	3.61	Active Listening	3.95
26	Resilience	3.31	Team Orientation	3.76	Verbal Reasoning	3.60	Improves the Organization	3.89
27	Detail-Focused and Precise	3.30	Active Listening	3.74	Cooperation/Teamwork	3.56	Systems Thinking	3.86
28	Project Manager	3.29	Processes Information and Data	3.73	Cognitive Flexibility	3.54	Self-Management	3.85
29	Processes Information and Data	3.26	Written Communication	3.70	Interpersonal Tact	3.51	Discipline	3.84
30	Discipline	3.23	Cooperation/Teamwork	3.68	Time Management	3.49	Unstructured Problem Solving	3.75

Note: M = Variance-weighted mean. Means have been weighted by inversing standard deviation and multiplying by original mean, which may result in weighted means with values above the KSB Importance rating scale of 0 =
"Not Important, 1 = "Somewhat Important", 2 = "Important", 3 = "Very Important", 4 = "Extremely Important"*

BR12 - Engineer Branch Summary

Engineer LTs indicated top KSBs for their jobs were Organizational Perspective, Project Management, Cooperation, Selflessness, and Communication. Engineer LTs and CPTs shared 12 of their Top 30 KSBs, however, CPTs indicated a number of newly important KSBs such as Problem Solver, Reading Comprehension, Oral and Nonverbal Comprehension, and Sound Judgement, as well as team skills such as Team Development, Enforcing Standards, Team Planning, and Perspective Taking. MAJs shared 17 top KSBs with lower ranks, but also rated 13 new KSBs as most important for their job performance, including a number of leadership skills and behaviors such as Encourages Subordinates to Exercise Initiative, Accept Responsibility, and Take Ownership, Interpersonal Relationship Building, Recognizes and Rewards Good Performance, Delegating, Leads by Example, and Improves the Organization. MAJs also require Decision Making, Situational awareness, perceptiveness, and being Detail-Focused and Precise. New top rated KSBs for LTCs included Tolerance for Ambiguity, Awareness of Cognitive Biases, Emotional Control, and Discipline. See Appendix F – Table F2 for complete Top 30 importance ratings.

BR13 - Field Artillery Branch Summary

Field Artillery LTs indicated the top KSBs for their jobs were Reading Comprehension, Sustains a Climate of Trust, Dependability, Self-Control, and Problem Solver. CPTs shared 16 top rated KSBs with LTs and rated 14 new top KSBs as important for their job, including Communicator, Knowledge of Combined Arms Operations, as well as cognitive skills such as Processes, Analyzes, and Organizes Information to Create Knowledge, Mental Agility, Analytical Thinking, and Critical Thinking. MAJs shared 22 of their Top 30 most important KSBs with lower ranks, but reported eight new top KSBs, most of which involved team skills such as Team Building, Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps Teamwork, as well as Monitoring. Additionally, MAJs reported new KSBs related to understanding the greater Army organization, specifically holding an Organizational Perspective and Improves the Organization. LTCs shared 23 of their top KSBs with lower ranks but showed seven new KSBs emerge as important for their job. Emergent LTC KSBs involved Systems Thinking, Perceptive, Army Values, Tolerance for Ambiguity, Initiative, Oral and Nonverbal Communication, and Encourages Discourse. See Appendix F – Table F3 for complete Top 30 importance ratings.

BR14 - Air Defense Artillery Branch Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Air Defense Artillery Branch overall were Sound Judgement, Communication Ability, Attentiveness, Stress Tolerance, and Adaptability. See Appendix F – Table F4 for complete Top 30 importance ratings.

BR15 – Aviation Branch Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Aviation Branch overall were Communication Ability, Mental Agility, being a Communicator, Oral Communication Skill, and Sound Judgement. See Appendix F – Table F5 for complete Top 30 importance ratings.

BR17 – Cyber Warfare Branch Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, we can describe top KSBs for officers across the overall Branch. Cyber Warfare was one Branch that diverged from others in terms communication. The first communication-related KSB required by Cyber Warfare officers was Written Communication, which was ranked number 18 in terms of importance. Cyber Warfare officers rated Initiative, Dependability, Sustains a Climate of Trust, and Interdisciplinary Reasoning as top attributes required for their jobs. See Appendix F – Table F6 for complete Top 30 importance ratings.

BR18 – Special Forces Branch Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for the Special Forces Branch overall were Communication Ability, Written Communication, Oral Communication Skill, Communicator, and Reading Comprehension. See Appendix F – Table F7 for complete Top 30 importance ratings.

BR19 - Armor Branch Summary

Armor LTs require a number of varied skills to be effective in tank and cavalry/forward reconnaissance operations on the battlefield including Dependability, Adaptability, Attentiveness, Stress Tolerance, as well as being a Problem Solver and effective Communication Ability. CPTs shared 13 top rated KSBs with LTs but also showed 17 new top-rated KSBs, including Military and Professional Bearing, Coordination, Self-Management, Problem Sensitivity and Cooperation/Teamwork. Armor MAJs shared 17 new KSBs with lower rank and rated 13 new KSBs as most important for their jobs, including General Cognitive Aptitude, Knowledge of Processes and Procedures, Critical Thinking, and MOS/Branch-Specific Knowledge and Skill, and Active Learning, among other attributes. Armor LTCs reported five new KSBs required for leaders at their echelon such as demonstrating Army Values, Strategic Thinking, Training and Developing Others, Unstructured Problem Solving, and Improves the Organization. See Appendix F – Table F8 for complete Top 30 importance ratings.

BR25 – Signal Corps Summary

Signal LTs rated Stress Tolerance, Dependability, Discipline, and Adaptability as the most important KSBs required by their jobs. Signal CPTs shared 17 of 30 top KSBs with LTs; however new top KSBs at the CPT level included Project Manager, Time Management, Task Planning and Management, Oral Communication Skill, as well as Balances Mission and Welfare of Followers. Signal MAJs shared 16 of their Top 30 most important KSBs with lower ranks but rated 14 new KSBs in their Top 30 KSBs including Multi-Tasking, Reading Comprehension, Creative Problem Solving and Innovation, Mental Agility, and Critical Thinking. Signal LTCs shared 27 of their Top 30 KSBs with lower ranks, but indicated three new top KSBs as being Coordinating Multiple Groups, Motivating Others, and Active Listening. See Appendix F – Table F9 for complete Top 30 importance ratings.

BR31 – Military Police Branch Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Military Police Branch overall included Communication Ability, Coordination, Dependability, Communicator, and Cooperation/Teamwork. See Appendix F – Table F10 for complete Top 30 importance ratings.

Military Intelligence Branch (BR35) Summary

Military Intelligence (MI) LTs reported multiple aspects of effective communication as important for their jobs, including Written Communication, Communication Ability, Reading Comprehension, and Communicator. Additionally, they rated Time Management and Dependability as top KSBs required for their jobs. MI CPTs shared 21 top rated KSBs with LTs and reported nine new KSBs as important, including Problem Solver, Situational Awareness, Resilience, and Active Listening. MI MAJs shared 22 top KSBs with lower ranks as well as rating eight new KSBs as most important. Some of these KSBs reflect a bigger picture perspective such as Systems Thinking, Strategic Thinking, and Organizational Perspective. MAJs also require the ability to Analyze Data or Information, Intellectual Efficiency, Tolerance for Ambiguity, and Unstructured Problem Solving. LTCs shared 23 of 30 top rated KSBs with lower ranks and reported seven new top KSBs including Verbal Reasoning, Military and Professional Bearing, Cooperation, Army Values, and Fostering Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps. See Appendix F – Table F11 for complete Top 30 importance ratings.

BR36 – Finance Management Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Finance Management Branch overall included Communicator, Communication Ability, Self-Management, Cooperation/Teamwork, Reading Comprehension. See Appendix F – Table F12 for complete Top 30 importance ratings.

BR42 – Adjutant General Corps Summary

Adjutant General Corps (AG) LTs indicated top KSBs for their jobs as being a Communicator, Resilience, Detail-focused and Precise, Attentiveness, and Emotional Control. AG LTs and CPTs shared 18 of their Top 30 KSBs, however, CPTs indicated 12 new highest rated KSBs. Important new KSBs for CPTs included Reading Comprehension, Multi-Tasking, Military and Professional Bearing, and Problem Solver, along with team skills such as Sustains a Climate of Trust, Cooperation/Teamwork, and Balances Mission and Welfare of Followers. MAJs shared 24 top KSBs with lower ranks, as well as six new top KSBs, including Critical Thinking, Analyzes and Organizes Information to Create Knowledge, Structured Problem Solving, and Coordinating Multiple Groups, Creative Problem Solving and Innovation, and Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps. AG LTCs shared 21 of their 30 top rated KSBs with lower ranks, as well as nine new KSBs, including Army Values, Providing Feedback, General Cognitive Aptitude, Decision-Making, and Leads By Example. See Appendix F – Table F13 for complete Top 30 importance ratings.

BR74 - Chemical, Biological, Radiological, and Nuclear (CBRN) Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the CBRN Branch overall included Communication Ability, Cooperation, Communicator, Dependability, and Cooperation/Teamwork. See Appendix F – Table F14 for complete Top 30 importance ratings.

BR88 – Transportation Corps Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Transportation Corps overall included Resource Management, Stress Tolerance, Cooperation, Unstructured Problem Solving, and Self-Management. See Appendix F – Table F15 for complete Top 30 importance ratings.

BR89 – Explosive Ordnance Disposal Corps Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Explosive Ordnance Disposal Branch overall were Communication Ability, Communicator, Oral Communication Skill, Self-Management, and Sustains a Climate of Trust. See Appendix F – Table F16 for complete Top 30 importance ratings.

BR90 – Multifunctional Logistics Branch Summary

Stress Tolerance, Dependability, Adaptability, and Time Management were top KSBs for Logistics LTs. Logistic CPTs shared 16 of 30 top rated KSBs with LTs but showed 14 new top KSBs several KSBs including Sound Judgement, Active Listening, Army Values, Critical Thinking, and Sustains a Climate of Trust. Logistics MAJs shared 25 of their Top 30 KSBs with lower ranks, but showed five new KSBs, many of which were related to teamwork, such as Fosters Teamwork, Cohesion, Cooperation, Loyalty, and Esprit de Corps, Team Planning, Team Building, and Team Orientation. They also indicated Analyzes and Organizes Information to Create Knowledge as a new important KSB. Logistics LTCs shared 26 of their Top 30 KSBs with lower ranks, but indicated four new top KSBs as being Humility, Strategic Thinking, Creative Problem Solving and Innovation, and Organizational Perspective. See Appendix F – Table F17 for complete Top 30 importance ratings.

BR91 - Materiel Maintenance and Munitions Management Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Materiel Maintenance and Munitions Management Branch overall included Time Management, Delegating, Creates a Learning Environment, Decision-Making, and Adaptability. See Appendix F – Table F18 for complete Top 30 importance ratings.

BR92 – Quartermaster Corps Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Quartermaster Corps overall included Cooperation/Teamwork, Dependability, Coordination, Monitoring, and Interpersonal Tact. See Appendix F – Table F19 for complete Top 30 importance ratings.

FA26 – Information Systems Engineering Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Information Systems Engineering Functional Area overall included Analytical Thinking, Basic Computer Skills, General Cognitive Aptitude, Technologically Adept, and Critical Thinking. See Appendix F – Table F20 for complete Top 30 importance ratings.

FA30 – Information Operations Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Information Operations Functional Area overall included Written Communication, Reading Comprehension, Communicator, Communication Ability, and Critical Thinking. See Appendix F – Table F21 for complete Top 30 importance ratings.

FA34 – Strategic Intelligence Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Strategic Intelligence Functional Area overall included Reading Comprehension, Written Communication, Analyzes and Organizes Information to Create Knowledge, Attentiveness, and Communicator. See Appendix F – Table F22 for complete Top 30 importance ratings.

FA40 – Space Operations Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Space Operations Functional Area overall included Problem Solver, Critical Thinking, Communicator, Cognitive Flexibility, and Written Communication. See Appendix F – Table F23 for complete Top 30 importance ratings.

FA46 – Public Affairs Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Public Affairs Functional Area overall included Communicator, Working with the Public, Written Communication, Reading Comprehension, and Oral Communication. See Appendix F – Table F24 for complete Top 30 importance ratings.

FA48 – Foreign Area Officer Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Foreign Area Officer Functional Area overall included Maintains Relevant Geopolitical Awareness, Written Communication, Self-Management, Joint, Interagency, Intergovernmental, and Multinational (JIIM) Perspective, and Communicator. See Appendix F – Table F25 for complete Top 30 importance ratings.

FA49 – Operations Research/Systems Analysis (ORSA) Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Operations Research/Systems Analysis Functional Area overall included Analyze Data or Information, Analytical Thinking, Basic Computer Skills, Systems Thinking, Processes Information and Data. See Appendix F – Table F26 for complete Top 30 importance ratings.

FA50 – Force Management Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Force Management Functional Area overall included Written Communication, Reading Comprehension, Oral Communication Skill, Active Listening, and Communication Ability. See Appendix F – Table F27 for complete Top 30 importance ratings.

FA51 Research, Development, and Acquisition Summary

Top KSBs for the Research, Development, and Acquisition Functional Area at the MAJ level included Communicator, Communication Ability, Active Listening, Reading Comprehension, and Project Manager. LTCs shared 17 of their Top 30 most important KSBs with MAJs, but also showed 13 new top KSBs including Army Values, Functional Area/Occupational-Specific Knowledge and Skill, Team Building, Dependability, and Creative Problem Solving and Innovation. See Appendix F – Table F28 for complete Top 30 importance ratings.

FA52 – Nuclear and Counterproliferation Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Nuclear and Counterproliferation Functional Area overall included Time Management, Communication Ability, Cognitive Flexibility, Basic Computer Skills, and Sound Judgement. See Appendix F – Table F29 for complete Top 30 importance ratings.

FA57 – Simulations Operations Summary

While there were insufficient responses to allow an analysis of the KSBs that emerged by rank, top KSBs for officers in the Simulations Operations Functional Area overall included Analyzes and Organizes Information to Create Knowledge, Task Planning and Management, Problem Solver, Time Management, and Organizational Perspective. See Appendix F – Table F30 for complete Top 30 importance ratings.

FA59 – Strategic Plans and Policy Summary

Strategic Plans and Policy MAJs indicated Strategic Thinking, General Cognitive Aptitude, Written Communication, and Analyzes and Organizes Information to Create Knowledge as the top KSBS required for the jobs. Strategic Plans and Policy LTCs shared 24 of their Top 30 most important KSBs with MAJs, but indicated new top KSBs as being Active Listening, Reflective Thinking, Time Management, Coordination, Cooperation/Teamwork, and Awareness of Cognitive Biases. See Appendix F – Table F31 for complete Top 30 importance ratings.

Discussion

The Army-wide Job Analysis for Officers survey was designed to identify the branch/FA-specific KSBs required for successful performance in one's job using the newly developed ATAF. Further, this large-scale study represents a rigorous and contextualized analysis of jobs within the Army that can facilitate matching officers with specific skills and abilities to those positions requiring those skills and abilities. Having data to support assessment of person-job fit can then increase individual satisfaction, improve retention, and enhance overall Army readiness. The results of this study can be used by Army talent management and strength managers to determine how to better match individuals to open positions, as well as provide insight for individuals applying to positions to determine how their strengths align with position requirements. Similarly, ARI researchers can use these results as a critical baseline for talent management lines of research. Some of these research efforts include comparing new approaches to more traditional methods of conducting job analyses (e.g., NLP and ML), determining how officer KSB requirements may change over time, and how force restructuring may influence KSB requirements. Researchers can also use this job analysis as a baseline for understanding current requirements and anticipate how emerging technology and changes in the operational and strategic operating environment may impact KSBs needed for future Army readiness.

Top KSB Requirements

Communication Ability emerged as the top KSB for 16 basic Branches/FAs, and Communicator as the top KSB for 15 out of the 30 basic Branches/FAs. Additionally, other KSBs from the Communication talent domain also emerged as the top-rated KSBs, including Active Listening Intercultural Communication, Oral and Nonverbal Comprehension, Oral Communication Skill, and Written Communication. These KSBs share similar definitions, which is likely why they were rated similarly high across numerous Branches/FAs. Among the basic Branches included in this report, all Branches listed either (or both) Communication Ability or Communicator within their top four KSBs, except for Cyber Warfare (BR 17) and Transportation Corps (BR 88). In the literature on communication, nonverbal communication is also assessed in six identifiable channels which includes qualitative use of words, human emotion, and content or mood surrounding the explicit verbal message (Dwyer & Hopwood, 2019). This also applies to military contexts where the use of verbal words may be restricted, such as work contexts involving engine noise (BR 88 - Transportation), room clearance (BR 11 - Infantry), and telecommunication (BR 17 - Cyber). Additional investigation can explore the Communication Talent as it relates to specific military contexts to better understand specific situations in which different aspects of communication facilitates performance. As past research has shown, the truly skilled communicator knows how to pick the right communication channel or medium with which to communicate, and the choice is usually based on the degree of information richness of one's environment (Moran & Morner, 2017).

Interestingly, our study found that FAs showed greater variation than the basic Branches in what KSBs emerged as the highest rated attribute. Communication-related KSBs only appeared within the Top 5 attributes for six of the 12 FAs[8]. This greater variation of top KSBs for FAs is likely due to several factors, such as the fixed structure of how FA officers are selected, as well as the

---

[8] Information Operations (FA30), Space Operations (FA40), Public Affairs (FA46), Research, Development, and Acquisition (FA51), Nuclear and Counterproliferation (FA52), and Strategic Plans and Policy (FA59). Communication-related KSBs did appear within the Top 5 KSBs for Strategic Intelligence (FA34) and Foreign Area Officers (FA48), and Force Managers (FA50).

highly specialized training and duty commitment required and tasks associated with these positions.

Following Communication Ability and Communicator as KSBs that tended to receive the highest ratings across Branches/FAs, Dependability was another attribute that generally appeared within the Top 5 KSBs across Basic Branches (10 of 17) and was the second highest rated KSB for LTs Army-wide. Among FAs, Dependability appeared within the top 10 highest rated KSBs in two of the 12 FAs. Dependability has often been shown to be an attribute of successful employees in talent management literature, (Ji et al., 2018) and the results of this study suggest its importance in military contexts as well. Similarly, Sound Judgement within the Decision-Making Talent was highly rated across multiple Branches/FAs. This KSB involves using information to make accurate decisions, timely judgement based on incomplete information and break habitual thoughts when new information becomes relevant. Considering the high-stakes environments in which Army officers must often make decisions, Sound Judgement may be a particular area of interest to develop valid and reliable assessments applicable to Army contexts.

An additional interesting finding was seen in how KSBs differ by rank within branches. While many KSBs were shared across different ranks with a given Branch or FA, CPTs tended to indicate KSBs related to Leadership and Management, as well as additional higher level thinking skills such as Critical Thinking and Analytical Thinking as being important. KSBs that emerged at the MAJ level tended to be those related to broader Organizational Perspective, Coordinating Multiple Groups, and Systems Thinking. LTCs tended to show fewer new top KSBs than lower ranks, which is expected as position requirements should build on positions previously held at lower ranks. However, LTCs did show that Army values was a top KSB, suggesting that LTCs should exemplify values such as loyalty, duty, integrity, and courage.

Implications

The results of this job analysis will be used by ARI scientists as a critical baseline for a number of talent management research efforts. Advances in areas such as natural language processing and survey/assessment methodologies may allow for faster, more efficient ways of collecting data on position requirements – for example, advances in NLP and ML may allow researchers to use more efficient techniques for extracting officer KSB and job requirements from text data, which can be used to gain additional perspective into ATAF KSB importance ratings. Additionally, this data may help provide insight into how KSB requirements tend to change across an officer's career. Understanding KSB requirements at each rank and within each Branch/FA also facilitates the identification and development of assessments that can be used to identify individuals with the required KSBs. Further, a proper understanding of current KSB requirements may help researchers better anticipate how modernization efforts, force restructuring, technological advances, and changes to the operating environment may impact KSBs and position requirements needed by the future Army.

This job analysis also served as a critical baseline for supporting current and future Army talent management efforts and serves an important role in helping the Army transition to a strategic talent management-based personnel system aimed at Acquiring, Developing, Employing, Retaining talent (Army People Strategy, 2019). By having a consolidated framework describing relevant attributes and job analysis data informing the relative importance of KSBs required for officers in each branch or functional area, future efforts can be directed at using this information

to select the right people for each position. This large-scale job analysis to identify the attributes critical to success in positions across each Army Branch/Functional Area (FA) and rank using the newly developed ATAF provides critical support to efforts to modernize the Army's talent management system and increase overall Army readiness. The results of this study provide a complete summary of attribute importance across the entire Army by both officer rank and Branch/FA. This information will be used to inform a large number of talent management initiatives across the Army.

In support of the Army's emphasis on Acquiring talent, data from this Army-wide job analysis survey will be used by Army talent management and strength managers to understand attributes required for each position and communicate those position requirements to the talent pool, and therefore better match candidates to available job positions by aligning the candidate's strengths and position requirements. Understanding the critical knowledge, skills, and abilities needed for specific positions, allows the identification of reliable and valid assessments for selection and assignment, and evaluating performance for promotion. Understanding KSB requirements for positions may also improve the AIM2 Marketplace process for officers. For individual officers, understanding how KSBs are used in the Marketplace enables them to communicate their strengths to units of interest.

In terms of supporting the Army's focus on Developing talent, by understanding position attribute requirements allows the identification of talent gaps and determining developmental opportunities through training, education, and credentialing. It also allows individuals to identify areas in which they need further development in preparation for a desired position.

Supporting the Army's emphasis on Employing talent, an increased understanding of position-required attributes will facilitate the alignment of individuals to positions for which they possess the required attributes. This also has implications for individual career pathing and succession planning. The Army has recognized the importance of person-job fit and is actively taking steps to better align individuals to jobs appropriate to their attributes. Emphasizing alignment between individual strengths and job requirements has been shown to increase worker job satisfaction, motivation, and retention (e.g., Barrick & Mount, 2005; Barrick & Parks-Leduc, 2019). Specifically, they can more readily identify potential candidates and ensure that they receive the appropriate experience and training to prepare for suitable positions.

Retaining qualified and high performing Soldiers is an area of interest for the Army. While in the past, the Army has typically assigned officers to positions based on their rank and availability of positions, there is an increased focus on person-job fit. When an individual's knowledge, skills, abilities, and interests align with position requirements, individuals tend to experience greater work engagement (Cai et al., 2018), higher contextual work performance (Han et al., 2015), and career commitment (Huang et al., 2019). Additionally, person-job fit is associated with decreased turnover (e.g., Boon & Biron, 2016), which is an important aspect of the Army's retention efforts. This understanding allows Army talent management to identify individuals with in-demand talents and engage these individuals with opportunities for career counseling and permeability (i.e., moving between different workforce positions for which they may be suited).

Limitations

Low rate of response was an issue throughout this study across multiple Branches/FAs. The response rate across multiple Branches/FAs indicates that the majority of officers did not respond to the survey. There were several factors that likely impacted response rates. First, there was a lack of sufficient force-wide messaging announcing the survey launch and aims of the study. While there was a strategic messaging plan in place, this plan relied on multiple organizations across the Army, which ultimately made it difficult to appropriately coordinate messaging before the survey launch. Further, due to messaging delays in distributing the survey, the survey was launched shortly before the holiday season, which likely reduced participant responses because many individuals take leave during the holiday season, reducing the days they are available to participate in the survey. Weekly reminders were used to alert potential participants of the opportunity to respond to the survey; however, this effort did not appear to be successful.

Related to the issue of technological low response rates, given that this survey was conducted online and required access to the NIPRNet and a common access card (CAC)-enabled computer, this may have limited easy access to the survey. This may be particularly problematic for accurately representing officers who are in the field and do not have ready access to the NIPRNet or to a CAC-enabled computer. It is unknown whether officers who completed the survey would have provided different ratings than officers who did not respond. An open link was later created that did not require NIPRNet access; however, response rates remained low.

An additional limitation was likely the length of the survey itself. As the ATAF contains 198 KSBs, participants may have been reluctant to invest the amount of time it may take to complete all KSB ratings. This was evident in the number of individuals who started but did not complete the survey. There were several other surveys being run simultaneously by other organizations that were aimed at collecting KSB ratings, which may have decreased responses as individuals participated in similar surveys and may have assumed that they already completed the survey. However, we did employ several techniques to ensure high quality data was presented in this report including analysis of participant time spent and careless responding, which may have alleviated issues resulting from survey inattention.

Another limitation within the ATAF itself and how KSBs are rated by job incumbents is in regard to KSBs titled "Branch-specific Knowledge and Skill" and "Functional Area/Occupation-specific Knowledge and Skill". These KSBs frequently emerged as important for officers but may not be useful to individuals unfamiliar with a particular Branch/FA's specific knowledge and skill requirements. Initially, the ATAF was envisioned as having a fourth tier composed of MOS/Branch/FA-specific requirements such as training and certifications, which would fall under Branch/FA-specific Knowledge and Skill. Army talent management may benefit from future studies aimed at identifying specific training, education, and certifications required by each Branch/FA, which could also allow us to link Branch/FA training and educational experiences to development of particular KSBs. While this may currently serve as a limitation, it may also be a useful avenue for future efforts to refine the ATAF.

Future Directions

As the ATAF is designed to be updated and refined to ensure it meets evolving and emerging needs of the Army, the results of this job analysis can assist us in further refining the framework. While the initial development of the ATAF was based largely on using a rational approach to

determining the structure and individual KSBs, researchers can now use dimension reduction techniques to determine whether some attributes overlap and can be consolidated, as well as observe the overall structure.

Related, a common issue in job analyses that can be addressed in future efforts is that work and situational contexts and characteristics are seldom considered, even though context plays a significant role in work performed. For example, one's work role usually involves factors such as autonomy in decision-making, social interactions, and interdependence with other individuals or work groups (Dierdorff & Morgeson, 2007; Dierdorff et al., 2009). Using the ATAF KSB importance ratings as a starting point for better improving person-job fit, future job analytic efforts can be aimed at identifying the specific social and structural contexts in which work tasks are performed, along with situational characteristics and strengths, which play a role in human cognition, affect, and behavior in work performance (Dalal et al., 2021). Consideration of situational characteristics and strengths have not been adequately incorporated into job analyses methods but have been shown to moderate the relationship between personality traits and work performance. Additionally, understanding some of these situational strengths and work contexts may be obtained through using modern techniques such as Natural Language Processing and Machine Learning to assess text responses by job incumbents.

In closing, the Army-wide Job Analysis for Officers survey was able to identify branch/FA-specific KSBs required for successful performance in officer jobs using the newly developed ATAF. These results have shown differences in job requirements according to branch/FA, as well as rank. Army talent management and strength managers may be able to use these findings to determine how to better match individuals to open positions and individual officers may more easily identify their strengths and areas where they need additional development to prepare for specific position requirements.

References

Barrick, M. R., & Mount, M. K. (2005). Yes, Personality Matters: Moving on to More Important Matters. *Human Performance, 18*(4), 359-372. https://doi.org/10.1207/s15327043hup1804_3

Barrick, M. R., & Parks-Leduc, L. (2019). Selection for fit. *Annual Review of Organizational Psychology and Organizational Behavior, 6,* 171–193. https://doi.org/10.1146/annurev-orgpsych-012218-015028

Boon, C., & Biron, M. (2016). Temporal issues in person-organization fit, person-job fit and turnover: The role of leader-member exchange. *Human Relations, 69*(12), 2177-2200. https://doi.org/10.1177/0018726716636945

Bowling, N. A., Brower, C. K., Bragg, C. B., Gibson, A. M., & Huang, J. L. (2018, April). *The quick and the careless: Page time as a measure of careless responding* [Poster presentation]. The 33rd Annual Conference of the Society for Industrial and Organizational Psychology, Chicago, IL, USA.

Cai, D., Cai, Y., Sun, Y., & Ma, J. (2018). Linking empowering leadership and employee work engagement: The effects of person-job fit, person-group fit, and proactive personality. *Frontiers in Psychology, 9*, Article 1304. https://doi.org/10.3389/fpsyg.2018.01304

Dalal, R. S., Baysinger, M., Brummel, B. J., & LeBreton, J. M. (2012). The relative importance of employee engagement, other job attitudes, and trait affect as predictors of job performance. *Journal of Applied Social Psychology, 42*(Suppl 1), E295–E325. https://doi.org/10.1111/j.1559-1816.2012.01017.x

DeSimone, J. A., Harms, P. D., & DeSimone, A. J. (2015). Best practice recommendations for data screening. *Journal of Organizational Behavior, 36*(2), 171-181. https://doi.org/10.1002/job.1962

Dierdorff, E. C., & Morgeson, F. P. (2007). Consensus in work role requirements: the influence of discrete occupational context on role expectations. *Journal of Applied Psychology, 92*(5), 1228–1241. https://doi.org/10.1037/0021-9010.92.5.1228

Dierdorff, E. C., Rubin, R. S., & Morgeson, F. P. (2009). The milieu of managerial work: An integrative framework linking work context to role requirements. *Journal of Applied Psychology, 94*(4), 972–988. https://doi.org/10.1037/a0015456

Dwyer, J., & Hopwood, N. (2019). *The business communication handbook* (11th ed.). Cengage Learning.

Dunn, A. M., Heggestad, E. D., Shanock, L. R., & Theilgard, N. (2018). Intra-individual response variability as an indicator of insufficient effort responding: Comparison to other indicators and relationships with individual differences. *Journal of Business and Psychology, 33*(1), 105–121. https://doi.org/10.1007/s10869-016-9479-0

Han, T. S., Chiang, H. H., McConville, D., & Chiang, C. L. (2015). A longitudinal investigation of person-organization fit, person-job fit, and contextual performance: The mediating role of psychological ownership. *Human Performance, 28*(5), 425-439. https://doi.org/10.1080/08959285.2015.1021048

Huang, W., Yuan, C., & Li, M. (2019). Person–Job Fit and Innovation Behavior: Roles of Job Involvement and Career Commitment. *Frontiers in Psychology. 10*, Article 1134. https://doi.org/10.3389/fpsyg.2019.01134

Hunter, J. & Schmidt, F. (2004). *Methods of Meta-Analysis Correcting Error and Bias in Research Findings.* Sage Publications, Inc.

Ji, Z., Pons, D., & Pearse, J. (2018). Why do workers take safety risks?—A conceptual model for the motivation underpinning perverse agency. *Safety*, *4*(2), Article 24. https://doi.org/10.3390/safety4020024

Lee, C. H., Cook, S., Lee, J. S., & Han, B. (2016). Comparison of Two Meta-Analysis Methods: Inverse-Variance-Weighted Average and Weighted Sum of Z-Scores. *Genomics & informatics*, *14*(4), 173–180. https://doi.org/10.5808/GI.2016.14.4.173

Moran B. B., & Morner, C. J. (2017). *Library and Information Center Management,* (9th ed.). ABC-CLIO.

Morgeson, F. P., Brannick, M. T., & Levin, E. L. (2020). *Job and Work Analysis: Methods, Research, and Applications for Human Resource Management,* (3rd ed.). Sage Publications, Inc.

Putka, D. J., Oswald, F. L., Landers, R. N., Beatty, A. S., McCloy, R. A., & Yu, M. C. (2022). Evaluating a natural language processing approach to estimating KSA and interest job analysis ratings. *Journal of Business and Psychology*, 1-26. https://doi.org/10.1007/s10869-022-09824-0

Royston, R. P., Goodwin, G. F., Ness, A. M., Keil, C. T., Lockhart, P. G., & Jones, M. (2022). *Army Talent Attribute Framework: A Unified Framework for Defining Personnel Characteristics* (Technical Report 1421). U.S. Army Research Institute for the Behavioral and Social Sciences: Fort Belvoir, VA. DTIC No. AD1190814

Schroeders, U., Schmidt, C., & Gnambs, T. (2021). Detecting careless responding in survey data using stochastic gradient boosting. *Educational and psychological measurement*, *82*(1):29-56. https://doi.org/10.1177/00131644211004708

U.S. Department of the Army (2014). Commissioned officer professional development and career management (DA Pamphlet 600-3). Author.

U.S. Department of the Army (2019a). Army Leadership and the Profession (Army Doctrine Publication, ADP 6-22). Author.

U.S. Department of the Army. (2019b). *The Army People Strategy* (Strategic Documents 05
Strategy Note 2019-01). Author. Retrieved September 2022, from
https://armypubs.army.mil/

U.S. Department of Defense (2021). Active Duty Members. In *2020 Demographics Dashboards:
Interactive Profile of the Military Community.*
https://demographics.militaryonesource.mil/chapter-2-gender/

Wyse, A. E. (2019). Analyzing job analysis data using mixture Rasch models. *International
Journal of Testing, 19*(1), 52–73. https://doi.org/10.1080/15305058.2018.1481853

Wyse, A. E. & Babcock, B. (2018). A Comparison of Subject Matter Experts' Perceptions and
Job Analysis Surveys. *Practical Assessment, Research & Evaluation, 23*(10), 1-10.
https://doi.org/10.7275/7dey-zd62

Acronyms

1LT	First Lieutenant
2LT	Second Lieutenant
ADP	Army Doctrine Publication
AIM2	Assignment Interactive Module Version 2
AOC	Area of Concentration
ARI	United States Army Research Institute for the Behavioral and Social Sciences
ArmyU	Army University
ATAF	Army Talent Attribute Framework
ATMTF	Army Talent Management Task Force
BR	Branch
CAC	Combined Arms Center
CAPL	Center for Army Professional Leadership
CAR	Central Army Registry
CPT	Captain
FA	Functional Area
ICTL	Individual Critical Task Lists
IER	Insufficient Effort Responding
IPPS-A	Integrated Personnel and Pay System-Army
IRB	Institutional Review Board
IRV	Intra-individual Response Variability
KSAO	Knowledge, Skills, Abilities, and Other Characteristics
KSB	Knowledge, Skills, Behaviors
KSB-P	Knowledge, Skills, Behaviors, and Preferences
LT	Lieutenant
LTC	Lieutenant Colonel
MAJ	Major
MCCoE	Mission Command Center of Excellence
NIPRNet	Non-classified Internet Protocol Router Network
OEMA	Office of Economic and Manpower Analysis
O*NET	Occupational Information Network
SME	Subject Matter Expert