

UPDATING THE PERSONNEL SELECTION SYSTEM FOR BEHAVIOR DETECTION OFFICERS

JOB/TASK ANALYSIS REPORT VOLUME I: TECHNICAL REPORT

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EXECUTIVE SUMMARY

The Transportation Security Administration (TSA) implemented the Screening of Passengers by Observation Techniques (SPOT) program to identify high-risk passengers and augment airport security. The employees responsible for conducting the SPOT program are specially trained TSA airport screeners called Behavior Detection Officers (BDOs). Their objective is to identify passengers during the screening process who exhibit behaviors that indicate they may be a threat to aviation and/or transportation security. Once identified, these passengers may be required to undergo additional screening.

The SPOT program currently has over 3,000 BDOs operating in more than 160 airports nationwide. Given the expansion of the program in recent years, the BDO job itself has changed and expanded to include a variety of new tasks such as “walking the line,” observing individuals outside of the security checkpoint, working in pairs with other BDOs, and using applied behavior detection methods. Therefore, a job/task analysis update was conducted to collect job/task analytic data to ensure that Human Resource Management (HRM) applications (e.g., selection, training) are driven by a current and accurate understanding of the work performed and the competencies/knowledge, skills, abilities, and other characteristics (KSAOs) needed by BDOs for successful job performance.

The approach to gathering job/task data to inform potential changes to existing selection and training initiatives required consideration of important issues. First, the approach relied heavily on access to various subject matter experts (SMEs) and stakeholders. For this effort, SMEs included incumbents such as BDOs, SPOT Transportation Security Managers (STSMs), and BDO trainers (e.g., Screening Training Instructors, National Standardization Team members), as well as personnel representing TSA’s Office of Human Capital (OHC) and Office of Security Operations (OSO). Second, given the anticipated use of the job/task analysis update to revise and/or develop selection and training programs for BDOs, the approach followed legal guidelines and professional standards (see Society for Industrial and Organizational Psychology, 2003; Equal Employment Opportunity Commission, Civil Service Commission, Department of Labor, & Department of Justice, 1978).

The job/task analysis update was conducted in several steps that each provided important information about the BDO job, as follows:

- Conducted background material review to develop initial BDO task, KSAO, and tools/equipment lists;
- Conducted site visits to provide input for the development of the job/task analysis survey;
- Developed and implemented a job/task analysis survey to finalize the BDO task list and to identify the most critical BDO tasks and KSAOs for the linkage exercise workshops;

- Conducted a task and KSAO linkage rating exercise to establish the job relatedness of KSAOs; and
- Developed a KSAO – competency crosswalk to link KSAOs to TSA’s Core and Technical Competencies.

Key Findings

Through the various data collection methods outlined above (e.g., open-response and closed-response survey items, focus groups, interviews, workshops), a number of important findings about the BDO job resulted. Key findings are highlighted below.

Task and KSAO Results

BDO survey respondents indicated that despite the variability in frequency of particular tasks, most could be categorized as very high in importance. These ratings did not differ meaningfully across airports, indicating that the BDO job is relatively consistent regardless of airport size or location. Tasks performed by BDOs were also commonly rated as not being difficult to learn, although differences in this rating were observed. These differences in task difficulty may have driven the desire expressed by some BDOs in the open-response section of the survey for training in topics (b)(3):49 U.S.C. § 114(r). Likewise, BDOs highlighted a need for further training (b)(3):49 U.S.C. § 114(r). Comments provided by KSAO-task linkage workshop participants also supported the notion of additional training related to particular topics (e.g., interactions with law enforcement officers (LEOs), initial baseline behavior resolution).

Along with task ratings, critical information was also provided by SMEs concerning the requisite KSAOs for the BDO job. First, a large portion of the KSAOs were rated by BDOs as important. Likewise, these KSAOs were differentiated as being either relevant for selection or training. This latter finding is particularly informative for future initiatives related to BDO selection process and tools. A final consideration regarding the KSAOs identified during the job/task analysis update is their relationship to TSA’s existing competency model. Based on the results of the KSAO – competency workshop, a majority of the KSAOs were found to have some link (ranging from “weak” to “strong”) to the existing competencies. These results suggest a significant overlap between two different analyses of the BDO job.

Work Context Results

Qualitative data resulting from the site visits and quantitative data resulting from the job/task analysis survey (i.e., the open-response section and work context items) indicated that BDOs believe their job features a significant amount of both physical and cognitive fatigue. Physical fatigue may primarily be attributed to extended durations of standing and walking. During site visits, SMEs noted the importance of good shoes, as well as shared stories about physical issues (e.g., knee problems requiring physical therapy), due to the walking and standing required on the job. Cognitive fatigue, on the other hand, is likely associated with the need to perform repetitive mental activities while maintaining a high level of accuracy. Finally, BDOs indicated that

ES-2

teamwork is a major component of successful performance for their job. This point was also highlighted in the open-response section of the job/task analysis survey, in which BDOs recommended the inclusion of the KSAOs related to the ability to work in a team and social skills in future selection processes.

Programmatic Challenges

In addition to the numerical ratings, comments provided by BDO personnel in the job/task analysis survey and during the linkage workshops may inform future decisions regarding the BDO job. For example, one trend that emerged from this job/task analysis concerned career progression opportunities for BDOs. Some individuals expressed concern regarding the lack of career advancement opportunities. Other respondents indicated a desire to have the opportunity to return to the Transportation Security Officer (TSO) track if they found themselves lacking interest or were not well-suited for the BDO job. Additional responses illustrated a need to formally differentiate the pay-scale and duties of the F- and G-Band BDOs. Finally, BDOs offered suggestions for improving the hiring process (e.g., including additional measures, hiring from a general labor pool, revising the current interview process).

Areas for Further Consideration

Throughout the BDO job/task analysis process, data were gathered and analyzed to ultimately support decisions regarding selection and/or training initiatives. Within these data, areas for possible follow-up or further consideration with regards to selection, training, or the BDO job in general emerged. These included topics such as effects of fatigue on BDO job performance; potential differences between F- and G-Band BDOs; the effect of participation in other security operations (e.g., Playbook) on the BDO workforce; and considerations related to the conduct of the casual conversation. A case study discussing data related to the conduct of the casual conversation was developed to highlight just one example of how job/task analysis data may be applied to inform potential next steps for selection and/or training.

Next Steps

The job/task analytic data gathered for the BDO job establishes the foundation for selection and training initiatives. For the current effort, the next phase of research will involve the examination of ways to improve the current selection system. This process begins with the identification of test specifications. This process includes the following steps, as described below.

- *Select KSAOs for inclusion in the selection system.* This step is partially completed, as it involves the identification of KSAOs that are required for important job tasks and required upon entry into the BDO job.
- *Conduct a literature review.* This step involves a review of academic literature about existing selection measures that could be used to assess these important KSAOs.
- *Evaluate feasibility of measures.* This step involves a review of identified selection measures to determine feasibility in terms of the appropriateness of test for given

purpose, the ease of implementation, the psychometric characteristics of existing measures, susceptibility to faking, and practical considerations (e.g., development costs).

- *Construct final test specifications.* This final step involves the preparation of a formal test specification document to include, among other information, the selected measurement method(s), proposed item development procedures, proposed scoring procedures, and test administration method(s).

Conclusion

The job/task analysis update described in this report provided up-to-date information about the BDO job. Specifically, data were collected and analyzed about the work (i.e., tasks) and worker requirements (i.e., KSAOs) required for the BDO job, including known changes and expansion to the job in recent years (e.g., walking the line, working in pairs). In addition, the job/task analysis provided information about differences across airports, programmatic challenges, and the component of the job related to the conduct of the casual conversation. The documentation of accurate and up-to-date information about the job ensures that HRM activities (e.g., selection, training) are informed by a current and accurate understanding of the job and what is required for successful performance on the job.

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	ES-1
KEY FINDINGS	ES-2
<i>Task and KSAO Results</i>	ES-2
<i>Work Context Results</i>	ES-2
<i>Programmatic Challenges</i>	ES-3
<i>Areas for Further Consideration</i>	ES-3
NEXT STEPS	ES-3
CONCLUSION	ES-4
OVERVIEW AND ORGANIZATION OF REPORT	iii
INTRODUCTION	1
BACKGROUND	1
PROJECT OVERVIEW	2
JOB/TASK ANALYSIS	3
IDENTIFICATION OF TASKS AND KSAOS	6
REVIEW BACKGROUND MATERIALS	6
CONDUCT PRE-SITE VISIT TELEPHONE INTERVIEWS	7
<i>Interview Participants</i>	7
<i>Semi-Structured Telephone Interview Protocol</i>	8
<i>Results</i>	8
CONDUCT SITE VISITS	9
<i>Site Identification and Participation</i>	9
<i>Job Observations</i>	10
<i>Semi-Structured Interviews</i>	13
<i>Focus Groups</i>	16
<i>Summary of Information Gathered</i>	20
<i>Post Site Visit Revision of Lists</i>	21
<i>BDO SME Selection and Training Recommendations</i>	21
JOB/TASK ANALYSIS SURVEY	22
PURPOSE	22
SURVEY DEVELOPMENT	22
<i>Survey Description</i>	23
<i>Survey Administration</i>	25
ANALYZE QUANTITATIVE JOB/TASK ANALYSIS SURVEY FINDINGS	28
<i>Method</i>	28
<i>Participants</i>	31
<i>Results</i>	35
<i>Discussion of Findings</i>	42
ANALYZE QUALITATIVE JOB/TASK ANALYSIS SURVEY FINDINGS	42
<i>Methods</i>	42

Results	44
Summary.....	47
KSAO – TASK LINKAGE EXERCISE	48
OVERVIEW AND PURPOSE.....	48
LINKAGE EXERCISE WORKSHOP PROCESS	48
Participants	48
Methods and Materials.....	51
DATA ANALYSIS AND RESULTS.....	54
Data Preparation	54
Data Analysis	55
Interrater Agreement Results	55
Linkage Rating Exercise Results	56
Written Comments from Linkage Workshop.....	58
DISCUSSION OF FINDINGS.....	59
KSAO - COMPETENCY CROSSWALK	61
OVERVIEW AND PURPOSE.....	61
STEP I: DEVELOP PRELIMINARY CROSSWALK LINKAGES	61
Methodology.....	61
Results	62
STEP II: FINALIZE CROSSWALK LINKAGES.....	63
Methodology.....	63
Results	65
PROPOSED REVISIONS TO TSA’S COMPETENCY CATALOG	65
Purpose	65
Process and Next Steps.....	67
SUMMARY	68
SUMMARY AND NEXT STEPS	69
REVIEW OF COMPLETED WORK.....	69
Important Products	69
Key Findings	70
NEXT STEPS.....	71
CONCLUSION	72
REFERENCES.....	73
GLOSSARY OF KEY TERMS AND ACRONYMS	75
JOB/TASK ANALYSIS CASE STUDY: CASUAL CONVERSATION	CS-1
INTRODUCTION.....	CS-1
Background	CS-1
CONSIDERATIONS FOR BDO SELECTION	CS-3
CONSIDERATIONS FOR BDO TRAINING	CS-4
CONCLUSION	CS-5

OVERVIEW AND ORGANIZATION OF REPORT

This report documents the project conducted by the American Institutes for Research (AIR) to complete a job/task analysis update for the job of Behavior Detection Officers (BDOs). The report includes two volumes: Volume I: Technical Report; and Volume II: Appendices.

Volume I documents details of the job/task analysis update. This information is presented in sections, which are summarized below.

Introduction: This section provides background information about the BDO job and the purpose and goal of the job/task analysis update. In addition, a project overview is provided.

Job/Task Analysis: This section describes the process involved in a job/task analysis. The steps conducted for the BDO job/task analysis update are outlined, along with an overview of the results of each step.

Identification of Tasks and KSAOs: This section describes the collection of job analytic data to inform the development of lists of duty/task and knowledge, skill, ability, and other characteristics (KSAOs) for the BDO job. Activities described in this section include the review of background materials; conduct of pre-site visit telephone interviews; and conduct of site visits.

Job/Task Analysis Survey: This section describes the development, administration, data analysis, and synthesis of results of the BDO job/task analysis survey. Results are presented for both quantitative and qualitative data gathered from the survey.

KSAO – Task Linkage Exercise: This section describes the process used to conduct task and KSAO linkages with subject matter experts (SMEs) during two workshops. Data analysis methods and results of this exercise are also presented.

KSAO - Competency Crosswalk: This section describes the approach for and results of documenting a crosswalk of KSAOs to the Transportation Security Administration's (TSA) existing competency catalogs.

Summary and Next Steps: This final section of the report provides a summary of the BDO job/task analysis update, notes important products resulting from this work, and revisits some key findings of this research. In addition, potential next steps related to the development of selection test specifications are summarized.

Volume II includes a variety of appendices that support the information included in Volume I, such as data collection protocols, the job/task analysis survey, and detailed data resulting from the job/task analysis.

INTRODUCTION

Background

The Transportation Security Administration (TSA) implemented the Screening of Passengers by Observation Techniques (SPOT) program to identify high-risk passengers and augment airport security. The employees responsible for conducting the SPOT program are specially trained TSA airport screeners called Behavior Detection Officers (BDOs). Their objective is to identify passengers during the screening process who exhibit behaviors that indicate they may be a threat to aviation and/or transportation security. Once identified, these passengers may be required to undergo additional screening.

The SPOT program currently has over 3,000 BDOs operating in more than 160 airports nationwide. Since its implementation in 2007,¹ the program has demonstrated success in behavioral observation screening methods, as demonstrated by the number of passengers stopped who were, in fact, of concern to law enforcement. As a result, the program has been rapidly expanding. This success is noteworthy given the difficulty of identifying individuals who intend harm but who have not yet committed any known or observable offense. Furthermore, ever-present concerns regarding terrorism and the nation's desire to protect itself while simultaneously respecting individual rights make the SPOT program politically relevant and highly visible.

The work performed by BDOs is inherently dangerous. There exists the potential for both physical and psychological harm to the BDO, the target, and the public. In addition to the inherent danger involved, the consequence of error is very high—failure of a BDO to identify someone who intends harm could result in catastrophic loss of life or property. Therefore, the performance of individual BDOs is a significant contributor to the success of the program and ultimately the safety of the traveling public.

In recent years, the BDO job has changed and expanded to include a variety of new tasks including “walking the line,” observing individuals outside of the security checkpoint, working in pairs with other BDOs, and using applied behavior detection methods. These changes to the job tasks can result in changes to the knowledge, skills, abilities, and other characteristics (KSAOs) (or competencies) needed to perform the job.

Having accurate and up-to-date information about the characteristics of a job is pertinent to the success of all Human Resource Management (HRM) activities. Because the job of a BDO has changed, it is necessary to gather updated information to ensure that BDO-related HRM programs are aligned with the current requirements of the job. More specifically, the goal of the job/task analysis update is to ensure that HRM applications (e.g., selection, training) are driven

¹ The SPOT program was piloted in 2006, and fully implemented in 2007.

by a current and accurate understanding of the work performed and the competencies needed by BDOs for successful job performance.

To build upon the SPOT program's early success and to ensure that the expanding workforce of BDOs will continue to be ready and able to accomplish their mission, a comprehensive personnel system is necessary. This system includes a valid selection system that ensures the systematic hiring of the individuals who are best qualified for the job, as well as training programs that reflect the KSAOs that are required for BDO job performance *after* hire. In addition to ensuring successful job performance, implementing a valid selection system and post-hire training programs may reduce the likelihood of turnover by strengthening the recruitment and selection of qualified individuals who are likely to succeed on the job and by providing training that presents a realistic job preview prior to entry into the BDO workforce. For the BDO workforce, turnover presents particular challenges, given the extensive pre-hire training that BDOs receive and the possible security implications to the SPOT program that result from having individuals who are knowledgeable about SPOT external to the program and/or to TSA.

Project Overview

In support of the potential revision and/or development of selection and training programs for BDOs, the American Institutes for Research (AIR) conducted a job/task analysis update of the BDO job. The approach to gathering job/task data to inform potential changes to existing selection and training initiatives requires consideration of important issues. First, the approach used to update selection and training programs relies heavily on access to various subject matter experts (SMEs) and stakeholders. SMEs are individuals who have relevant knowledge and expertise about a particular job and can include incumbents, supervisors, and trainers (Guion, 1998). For this effort, SMEs included incumbents such as BDOs, SPOT Transportation Security Managers (STSMs), and BDO trainers (e.g., Screening Training Instructors, National Standardization Team members), as well as personnel representing TSA's Office of Human Capital (OHC) and Office of Security Operations (OSO). Thus, the process requires constant evaluation of who to involve and how to involve them in a way that minimizes disruptions to normal operations, yet ensures that the critical input is obtained.

Second, it is critical that the approach to updating and/or developing selection and training programs follows legal guidelines and professional standards (Harvey, 1991; Thompson & Thompson, 1982). Beginning the process with a comprehensive job/task analysis represents best practices (Society for Industrial and Organizational Psychology [SIOP], 2003) and meets legal requirements according to the *Uniform Guidelines on Employee Selection* (Equal Employment Opportunity Commission [EEOC], Civil Service Commission, Department of Labor, & Department of Justice, 1978). Therefore, the collection of information about the BDO job was gathered through an extensive job/task analytic process. Throughout this project, these processes and their results have been documented and are described in more detail in the next sections of this report. This information may be used to support further TSA HRM activities, as appropriate.

JOB/TASK ANALYSIS

Job/task analysis, which builds the foundation for all HRM applications, is the process of defining a job in terms of the work activities that workers perform (the job requirements), identifying the characteristics of workers required to perform those activities (the worker requirements; Brannick & Levine, 2002), and identifying the tools and equipment required to perform the work duties and tasks. A job/task analysis update ensures the accuracy of information about the work and the worker characteristics necessary for the development and evaluation of effective HRM systems, including recruitment and selection, training, career development, performance management, workforce planning, job design, compensation systems, and health and safety requirements. In addition, the rigor inherent in job/task analysis studies provides the legal foundation for credible employee selection efforts (Harvey, 1991; Thompson & Thompson, 1982). The accuracy of the information required for these systems also promotes perceptions of fairness by the job candidates.

Job requirements are most often defined in terms of the tasks and duties required for the job in question. Work tasks are distinct activities or behaviors completed for a specific purpose with a defined beginning and end. These work activities are typically captured in the form of *task statements*, which are statements that succinctly and specifically describe a behavior or activity. These task statements are grouped into broader, high level areas of responsibility known as *duties*, which are defined as a broad segment of the work performed by an incumbent (Cascio & Aguinis, 2005).

A job/task analysis also includes a detailed description of the worker requirements needed for the job. These worker requirements are comprised of the KSAOs needed by job incumbents to perform the tasks and duties required by the job (See Exhibit 1). In brief, *knowledge* is what the worker needs to know, *skills* are what the worker needs to know how to do, *abilities* are characteristics the worker has that cannot be easily learned or trained, and *other characteristics* are comprised of any other personal characteristic relevant to job performance that is not included in the other categories (e.g., interests, values, motivation). For example:

- *Knowledge of stress cues and appearance factors;*
- *Skill in identifying behaviors and assigning the proper point value to them; and,*
- *Ability to stand for long periods of time.*

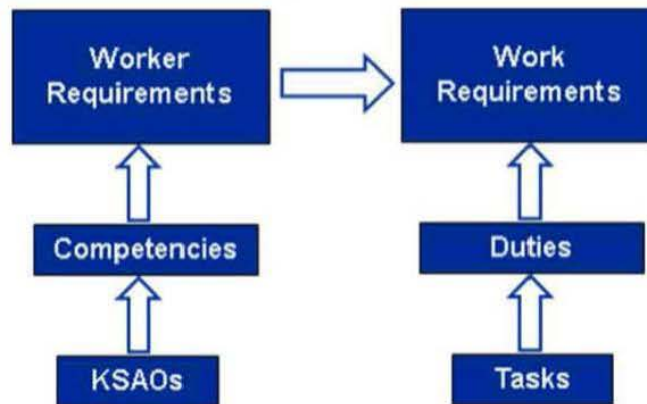
Examples of *other characteristics* that may be required of BDOs are *honesty/integrity, flexibility, and stress tolerance.*

Worker requirements, defined in job analysis terms as KSAOs, may also be defined in terms of *competencies*. Competencies are sets of worker attributes that are broader versions of KSAOs and are most often not linked to specific job tasks as is done in a traditional job analysis approach. Though definitions of competencies vary widely (Schippmann et al., 2000), there is agreement that the focus of a competency modeling approach is to identify broader characteristics of individuals needed to perform a job than are typically identified in a traditional

job analysis approach (Cascio & Aguinis, 2005). These broader characteristics could include motivational orientations, beliefs, values (Fleishman, Wetrogan, Uhlman, & Marshal-Mies, 1995), traits, self-concepts, attitudes, content knowledge, and cognitive or behavioral skills (Spencer, McClelland, & Spencer, 1994).

For the BDO job/task analysis, information about both KSAOs and competencies as they relate to the BDO job was collected. This information was used to develop a crosswalk that linked KSAOs to TSA competencies, as is described in more detail in the KSAO – Competency Crosswalk section of this report.

Exhibit 1. Components of Job/Task Analysis



Job/task analysis data can be collected using a variety of methods. Most often these methods are used in conjunction with one another, depending on the characteristics of the job and the organization, the purpose of the job/task analysis, or resources (e.g., time, financial resources). The primary methods used to collect data include SME interviews, SME focus groups, job observation, and reviews of existing information and literature about the job. Table 1 provides an overview of the steps conducted to complete the BDO job/task analysis update, along with their key outcomes. Each of these steps is described in the sections that follow.

Table 1. BDO Job/Task Analysis Steps

Job/Task Analysis Step	Work Completed	Results
Background Materials Review	Reviewed documents including the SPOT Standard Operating Procedures (SOP), training materials, and position descriptions.	Developed initial BDO task, KSAO, tools/equipment lists
Site Visits	Visited 11 airport locations: • Observed BDO performance in work environment • Conducted semi-structured interviews with supervisors and incumbents • Held focus groups with SMEs to collect information on tasks, KSAOs, tools, and TSA competencies	Provided input for development of the job/task analysis survey
Job Analysis Survey	Administered electronic survey to 578 BDOs to gather ratings on BDO tasks and KSAOs	• Finalized task list • Identified the most critical BDO tasks and KSAOs for linkage exercise workshops
KSAO - Task Linkage Rating Exercise	SMEs completed task and KSAO linkages by rating the extent to which each KSAO linked to each job task	Established the job relatedness of KSAOs (i.e., that each KSAO is a requirement for performing job tasks)
KSAO - Competency Crosswalk	Job analysts linked KSAOs to TSA Competencies and finalized these in a working group meeting with TSA.	• Ensured job/task analytic data can be maximally useful in supporting TSA's human capital initiatives by linking KSAOs to TSA Core and Technical Competencies • Revised 6 existing competencies and developed 5 additional competencies for the BDO job

IDENTIFICATION OF TASKS AND KSAOs

This section outlines the steps used to conduct the updated job analytic information for the BDO job through June 2010. Table 2 provides an overview of the activities conducted to complete the job/task analysis update, along with completion dates. Detailed information about each of these activities is described below.

Table 2. Timeline of Job/Task Analysis Activities

Activity	Completion Dates
Review Background Material	June 2009
Conduct Pre-Site Visit Telephone Interviews	September 2009
Conduct Site Visits (11 locations)	November 2009
Conduct Job/Task Analysis Survey	April 2010
Analyze Quantitative Job/Task Analysis Survey Findings	May 2010
Analyze Qualitative Job/Task Analysis Survey Findings	May 2010
Conduct KSAO - Task Linkage Workshops	May 2010
Complete KSAO - Competency Crosswalk	June 2010
Write Job/Task Analysis Report	July 2010

Review Background Materials

To leverage existing knowledge about the requirements of the BDO job, AIR began the job/task analysis by gathering and reviewing an extensive collection of existing documents and background materials. These documents and materials are listed below:

- *SPOT Standard Operating Procedures* (SOP; implementation change: 26 February, 2009);
- *Validation Report for Behavior Detection Officer (BDO), BDO – Screening Training Instructor (BDO – STI), and Transportation Security Manager – BDO (TSM – BDO) Selection* (2007);
- *TSA Job Analysis Tools for Master Transportation Security Officer (MTSO; F Band), Expert Transportation Security Officer (ETSO; G Band), TSM (H Band), and TSM (I Band)*;
- *SPOT Interview Guide for BDO (F and G Bands)*;
- *SPOT Interview Guide for TSM – BDOs (H Band)*;
- *Administration Guide for Behavior Detection Officer (BDO) and Transportation Security Manager – BDO (TSM – BDO) Selection*;
- *TSA Competency Catalog*;

- Job vacancy descriptions² for the following job titles:
 - Transportation Security Officer (TSO)
 - ETSO - BDO
 - MTSO - BDO
- SPOT training curriculum materials (v2.1);³ and
- Task analyses (i.e., flowcharts depicting BDO tasks).⁴

In addition, AIR conducted a review of information and literature relevant to the BDO job. Job information contained in the Department of Labor's Occupational Information Network (O*NET) (<http://online.onetcenter.org/>) was also identified and reviewed.

Information obtained from these background materials was used to develop preliminary lists of BDO job duties and tasks, KSAOs, tools/equipment, and competencies. In addition, this information was also used to develop a semi-structured interview protocol (as described below).

Conduct Pre-Site Visit Telephone Interviews

Following the review of background materials, AIR conducted semi-structured telephone interviews with SMEs in order to gather information to provide additional insight into the BDO job, as well as to inform any needed revisions to the interview protocol, prior to the site visits.

Interview Participants

SMEs invited to participate in the interviews included SPOT STSMs and National Standardization Team members that were identified by one of the founders of the SPOT program. TSA provided SMEs with information that included a brief overview and purpose of the project, the format of the interview, the types of questions that would be asked, and how the data would be used. A copy of the information provided by TSA to these SMEs is included in Appendix A.

Interviews were conducted with four SMEs. As shown in Table 3, three STSMs and one SPOT National Training Team member were interviewed in September 2009. Each interview was scheduled for one hour and was conducted one-on-one with a job analyst.

² Job vacancy information found at USAjobs.gov and <http://federalgovernmentjobs.us/>.

³ Materials received from curriculum developers contracting to DHS.

⁴ Materials received from curriculum developers contracting to DHS.

Table 3: Pre-Site Visit SME Telephone Interviews

SME Job Title	SME Airport or Affiliation	Date of Interviews
STSM	General Edward Lawrence Logan International Airport (BOS)	28 September 2009
STSM	Salt Lake City International Airport (SLC)	22 September 2009
STSM	Orlando International Airport (MCO)	29 September 2009
National Standardization Team Member	TSA Headquarters	29 September 2009

Semi-Structured Telephone Interview Protocol

The semi-structured interview protocol consisted of an overview of the project, questions regarding each SME's background and experience with SPOT, and job-related questions organized in the following categories:

- *Tasks* (e.g., "What are some of the important tasks or responsibilities of BDOs?" "How is a typical day structured for a BDO?")
- *Requirements for successful performance* (e.g., "What KSAOs, or competencies, must a BDO possess to effectively perform the job?" "What KSAOs/competencies are specifically required for the casual conversation?")
- *BDO selection, training, and performance management* (e.g., "What parts of the selection system do you think are most effective? Why?" "How is BDO performance currently assessed?")
- *Closing comments* (e.g., "Are there things you think that are important that we have not talked about?")

The complete interview protocol is included in Appendix B. Specific questions included in each interview were determined by the job analyst, based on the individual SME's background and time available.

Results

The results of these interviews were helpful in multiple ways. First, these interviews provided a preview of the type of information to be expected from the site visit interviews. That is, collectively, SMEs provided a sense of the issues and areas in which the job and task analysis should further investigate. Second, these interviews served as a pilot test of the interview protocol intended for site visit interviews. No changes to the protocol were made as a result of these preliminary interviews.

Conduct Site Visits

Next, job analysts collected job analytic data at airports across the U.S., as detailed below.

Site Identification and Participation

Sites were selected based on geographic diversity, airport size, and TSA recommendations. Selected sites were invited to participate via email by TSA. The emailed invitations were sent to site points-of-contact (POCs) and included a summary of and background information about the work being conducted, as well as requirements for participation [e.g., availability of BDOs to participate in site visit activities, private meeting space(s)]. A copy of the pre-site visit information is included in Appendix C.

Site visits were conducted at 11 locations. For each site, a POC was identified by TSA. POCs were typically STSMs at the respective site; however other personnel, such as Assistant Facility Security Directors (AFSDs) and G-Band level BDOs also served as POCs for coordinating these visits. The Task Leader for the job/task analysis initiated contact with each POC to determine site visit dates, discuss the information requirements, and solicit interest in participation. To ensure all necessary information was obtained from and/or discussed with each POC, the Task Leader used a pre-site visit coordination protocol. This protocol included questions to discuss the selection of site visit dates, logistics surrounding focus groups and job observations, and travel logistics. A copy of this protocol is included in Appendix D.

When possible, a small or medium airport near a selected large airport was also identified for inclusion in the job/task analysis to ensure an analysis of the BDO job in various sizes of airports, where the performance and/or frequency of tasks may have differed.

Once the interest and availability of a site was confirmed, job analysts made the appropriate travel arrangements and coordinated with TSA representatives, so that their participation was possible, when scheduling permitted such. Two job analysts participated in each site visit. All site visits were conducted during October and November 2009. Table 4 provides an overview of the site visits conducted.

Table 4: Site Visit Information

Airport Code	Airport Name	Airport Size ⁵	# of AIR Job Analysts	# of TSA Representatives	Date(s) of Visit
BWI	Baltimore/Washington International Airport	Large	3	1	13-14 October
BOS	General Edward Lawrence Logan International Airport	Large	2	1	13-15 October
PVD	Theodore Francis Green Memorial State Airport	Medium	2	0	16 October
MCO	Orlando International Airport	Large	2	1	19-21 October
SFB	Orlando Sanford International Airport	Small	2	0	22 October
HNL	Honolulu International Airport	Large	2	2	2-4 November
KOA	Kona International Airport	Small	2	2	5-6 November
SAN	San Diego International Airport	Large	2	0	10-12 November
PSP	Palm Springs International Airport	Small	2	0	13 November
DTW	Detroit Metropolitan Wayne County Airport	Large	2	0	16-18 November
FNT	Bishop International Airport	Small	2	0	19 November

While on site, AIR conducted structured interviews and focus groups with SMEs to gather detailed information regarding the job. Of particular importance was gathering information from BDOs to improve the accuracy and clarity of the task, KSAO, competency, and tool/equipment lists.

During each site visit, AIR's job analysts recorded information about the conducted data collection efforts on a summary form. This provided an organized way to track and summarize information about the job observations, interviews, and focus groups conducted for each site and for compiling this information across sites. The site visit summary form is included in Appendix E.

Job Observations

Observation of BDO job performance provided a rich source of information about how the job is currently performed, the work environment, the BDOs who perform it, and differences in the job

⁵ Airport size (i.e., hub size) is defined by the Federal Aviation Administration in terms of the total annual passenger boardings. Large airports have 1% or more of the total annual passenger boardings. Medium airports have at least .25% but less than 1% of the total annual passenger boardings. Small airports have at least .05% but less than .25% of the total annual passenger boardings.

across sites. Job observations were conducted with an observation protocol. The protocol was developed by considering the goals of the overall job/task analysis (e.g., identify the current tasks performed by BDOs) and the need to gather data that may be most salient through observing the job (e.g., the work environment, BDO positioning, teamwork performed). As such, the protocol included sections for recording observations regarding the following topics:

- *Background information.* The job analyst recorded information such as the observation start and end times and the number of BDOs observed.
- *BDO job.* The job analyst recorded information regarding BDO duties, tasks, and work conditions observed.
- *BDO job requirements.* The job analyst recorded information regarding the use of KSAOs, teamwork, and tools/equipment.
- *Casual conversation.* When possible to observe, job analysts recorded information about the conduct of casual conversations.
- *Manager tasks.* If a manager or designee was present during the observation, the job analyst recorded information about the tasks associated with this role.
- *Cross-airport knowledge.* If a given job analyst observed BDOs at more than one airport, the job analyst used this section to record observed differences and similarities across sites.
- *Other observations.* The job analyst recorded any other information that may have been learned or observed during the job observation.

This protocol was intended to serve as a guide, such that the topic areas would serve as a reminder to job analysts about the types of data to collect. In fact, during job observation, analysts often did not complete the observation protocol in real-time. Rather, in order to help reduce the likelihood of changes in the environmental baseline as a result of conducting overt observations, analysts made every effort to record discrete notes during the observations and complete the protocol during breaks or following the observations. The job observation protocol is included in Appendix F.

The logistics of each job observation varied by site. A goal of this effort was to observe BDOs during a variety of shifts, such that samples of the BDO job during both busy and slow times could be observed. Most job observations were conducted at security checkpoints, where BDOs spend the majority of their time. However, some job observations also took place as SPOT was conducted near ticket counters, at gates, in rental car areas, and outside of the airport. These locations represent a sample of those at which BDOs may conduct SPOT as part of Playbook activities. Job observations also varied in length of time, ranging from 1 to 4 hours; however, at most sites, a number of observations were conducted. Therefore, the average number of hours of job observations conducted across sites was over 4.6 hours, with a range of 1.0 hour to 9.5 hours. Table 5 summarizes the total number of hours of job observations conducted by site.

Table 5. Length of Job Observations by Site

Airport Code	Airport Name	# of AIR Observers	Date(s) of Job Observations	Total # of Hours of Job Observations
BWI	Baltimore/Washington International Airport	2	13 – 14 October	4.50
BOS	General Edward Lawrence Logan International Airport	2	13 – 15 October	4.25
PVD	Theodore Francis Green Memorial State Airport	2	16 October	1.00
MCO	Orlando International Airport	2	19 – 21 October	9.50
SFB	Orlando Sanford International Airport	2	22 October	2.50
HNL	Honolulu International Airport	2	3 – 4 November	5.50
KOA	Kona International Airport	2	5 – 6 November	7.50
SAN	San Diego International Airport	2	11 – 12 November	6.00
PSP	Palm Springs International Airport	2	13 November	3.75
DTW	Detroit Metropolitan Wayne County Airport	2	18 November	3.50
FNT	Bishop International Airport	2	19 November	3.00
Average Length (Hours) Job Observations Across Sites				4.64

Job observations also varied in terms of the level of involvement of the STSM(s) or designee(s) at each site. For example, during some site visits, job analysts were permitted to observe BDOs independently, while during other site visits, the STSM or designee for the given shift stood with the job analysts and explained some of what was being observed. Similarly, there were differences in how casual conversations were observed. At some sites, job analysts were responsible for monitoring the likelihood of a casual conversation and positioning themselves accordingly. At other sites, the STSM, designee, or another member of the BDO team escorted the job analyst to a position in which the casual conversation could be observed and/or overheard.

The job observation data provided several types of information. First, the job observations provided job analysts with insight into the context in which the BDO job was conducted. For example, observing the size of the area and number of passengers for which BDOs were responsible for monitoring provided context for the complexity of the job during periods of high passenger volume. Second, the job observations provided information that may not be possible to gather through an interview or that may be difficult for SMEs to articulate. Examples of this type of information include communication strategies (e.g., Were radios used? Did BDO use hand signals to alert one another of observed behaviors?), positioning (e.g., For how long did a

BDO remain in one position? Were there specific triggers for repositioning?), and teamwork skills.

Finally, the job observations provided insight into two particular aspects of the BDO job that were of particular interest to the job analysts. One aspect of interest was if and how the BDO job overlapped with or involved coordination with the TSO job. The job observations revealed that this varied by site. In some airports, BDOs performed TSO job tasks as a means of blending in with the TSOs while conducting SPOT. In other airports, BDOs were occasionally asked to perform TSO tasks, such as the ticket and document checker (TDC) task. SMEs across several airports reported concern with this use of BDOs, as their primary mission was intended to be extending the line of security by observing passengers. At one airport, BDOs were only tasked with the TDC role at times when passenger flow became so heavy that this was the only solution for quickly processing passengers. The second aspect of the BDO job that was of interest was physical and/or mental fatigue associated with the job. Job observations provided analysts with a better sense of these factors such as the length of time BDOs are on their feet, the amount of walking required for the job, the requirement to remain focused on passengers' behaviors over long periods of time, and the performance of mental calculations while assigning and remembering point assignments.

Semi-Structured Interviews

Interviews were also conducted during the site visits. This data collection effort – as well as the focus groups – were used to collect information about the tasks and duties performed by BDOs, the KSAOs and competencies required to successfully perform these tasks and duties, and information/feedback concerning current selection and training processes.

SMEs who participated in these interviews included STSMs, BDO trainers (those formally and informally serving in this role), and BDO incumbents selected by a STSM or designee at each site. Some interviews were also conducted with personnel such as Facility Security Directors (FSDs), AFSDs, and HR representatives. The interviews were scheduled for one hour each and conducted in private meeting spaces. At some sites, the site POC established an interview schedule in advance. At other airports, the site POC selected individuals for participation in the interviews as availability of SMEs and interviewers permitted such. Table 6 provides a summary of the site visit interviews.

Table 6: Semi-Structured Interviews Conducted During Site Visits

Airport Code	Airport Name	Date(s) of Interviews	# of Interviews by Job Title ⁶	Total # of Interviews
BWI	Baltimore/Washington International Airport	13 – 14 October	3 – BDO 1 – BDO Trainer 3 – STSM	7
BOS	General Edward Lawrence Logan International Airport	13, 15 October	1 – BDO Trainer 6 – STSM 2 – STSM/Nat'l Trainer 2 – AFSD or DFSD 1 – HR Rep	12
PVD	Theodore Francis Green Memorial State Airport	16 October	2 – BDO 1 – STSM 1 – AFSD	4
MCO	Orlando International Airport	19 – 21 October	4 – BDO 3 – STSM	7 ⁷
SFB	Orlando Sanford International Airport	22 October	4 – BDO	4
HNL	Honolulu International Airport	2, 4 November	3 – BDO 2 – STSM 1 – AFSD	6 ⁸
KOA	Kona International Airport	5 – 6 November	7 – BDO	7
SAN	San Diego International Airport	10 – 12 November	9 – BDO 2 – STSM	11 ⁹
PSP	Palm Springs International Airport	13 November	1 – STSM 1 – AFSD 1 – FSD	3
DTW	Detroit Metropolitan Wayne County Airport	16 – 17 November	6 – BDO 3 – STSM	9
FNT	Bishop International Airport	19 November	4 – BDO 1 – STSM 1 – AFSD	6

To facilitate this process, a semi-structured interview protocol was developed. The semi-structured interview approach provided flexibility in terms of the selection and number of questions asked. This approach allowed the job analyst to ask and probe on questions deemed most relevant to the work of each SME. In addition, when time was a factor, questions could be prioritized.

⁶ For the purposes of this table, job titles are defined as follows: BDO = Incumbent BDOs at any level (i.e., F- or G-Band BDOs); BDO Trainer = BDOs working in a formal (i.e., National Trainer) or informal (i.e., in-house training specialist) role; STSM = H- or I- Band STSMs, known at some sites as “BDO Managers.”

⁷ Note that at MCO, two interviews were conducted simultaneously as a result of scheduling conflicts. Therefore, six interviews were conducted with a total of seven interviewees.

⁸ Note that at HNL, two interviews were conducted simultaneously, such that five interviews were conducted with a total of six interviewees.

⁹ Note that at SAN, two interviews were conducted simultaneously. Therefore, ten interviews were conducted with a total of 11 interviewees.

Two separate semi-structured interview protocols were developed for this effort: one for large (i.e., "hub") airports and one for small airports. These protocols were developed by modifying the protocol developed for the pre-site visit telephone interviews with SMEs. The difference between the large airport and small airport protocols was in the number of questions included. Specifically, the large airport protocol included 40 questions and the small interview protocol included 25 questions. Pre-site visit planning indicated that small airports included small teams of BDOs. As such, site POCs had less flexibility to remove BDOs from their shift assignments, and it was important to adhere to the one hour (or less, as needed) timeframe for interviews. Therefore, the small airport interview protocol includes the questions intended to gather the most important information for the job/task analysis, such as those aimed at gathering lists of tasks and KSAOs.

Both the large and small airport protocols included an overview of the project and a set of demographic questions, followed by a series of questions organized into the following categories:

- *Tasks* (e.g., "What are some of the important tasks or responsibilities of BDOs?"; "How is a typical day structured for a BDO?")
- *Requirements for successful performance* (e.g., "What KSAOs, or competencies, must a BDO possess to effectively perform the job?"; "What KSAOs/competencies are specifically required for the casual conversation?")
- *BDO selection, training, and performance management* (e.g., "What parts of the selection system do you think are most effective? Why?"; "How is BDO performance currently assessed?")
- *Closing comments* (e.g., "Are there things you think that are important that we have not talked about?")

The semi-structured interview protocol followed at large airports is included in Appendix G; the protocol for small airports is included in Appendix H.

Two job analysts were available to conduct interviews at each site; however the interviews were conducted one-on-one.

The results of the on-site interviews with SMEs included a variety of data about the BDO job and the SPOT program. First, the interview data resulted in lists of BDO tasks, KSAOs, and tools/equipment relevant to the BDO job. This information was later reviewed to ensure that critical tasks and KSAOs noted during the interviews were included in the post-site visit lists. Second, the interviews resulted in data related to the selection of BDOs, BDO training, and BDO performance measurement. These data were compiled into a document that presented SME-provided selection- and training-related recommendations for TSA's consideration. This document is discussed further under "Selection and Training Recommendations" later in this section of the document.

Focus Groups

AIR also conducted focus groups with SMEs at several of the airports. This data collection method allowed BDO incumbents the opportunity to provide additional information on the improvement of the task, tool/equipment, KSAO, and competency lists.

Focus groups were conducted at 8 of the 11 sites visited.¹⁰ For each site visit where a focus group was possible, 6-12 current BDOs were made available by the site. One site (BOS) included enough BDOs for two focus groups to be conducted. Table 7 also provides an overview of the conducted focus groups.

Table 7: BDO Focus Groups Conducted During Site Visits

Airport Code	Airport Name	# of AIR Facilitators	Date(s) of Focus Group	Total # of SMEs
BWI	Baltimore/Washington International Airport	2	13 October	11
BOS	General Edward Lawrence Logan International Airport	2	14 October	8 ¹¹
		2	14 October	10
PVD	Theodore Francis Green Memorial State Airport	2	16 October	8
MCO	Orlando International Airport	2	20 October	9
SFB	Orlando Sanford International Airport	N/A	N/A	N/A
HNL	Honolulu International Airport	2	3 November	8
KOA	Kona International Airport	N/A	N/A	N/A
SAN	San Diego International Airport	2	10 November	6
PSP	Palm Springs International Airport	2	13 November	6
DTW	Detroit Metropolitan Wayne County Airport	2	16 November	13
FNT	Bishop International Airport	N/A	N/A	N/A

Each focus group was scheduled for 4 hours in a private meeting space. STSMs and other personnel were not permitted to attend the focus groups, in order to help facilitate confidential, honest, and open discussions.

¹⁰ The three sites at which focus groups were not conducted were small airports that did not have enough BDOs to permit a focus group and allow coverage of BDO job duties during a given shift.

¹¹ Note that two separate focus groups were conducted on 14 October at BOS. The first focus group included 8 BDO participants; the second focus group included 10 BDO participants.

During the focus groups, SMEs reviewed all of the lists for content, accuracy, and comprehensiveness. This process resulted in a revised set of task, KSAO, competency, and tools/equipment lists. Details of this process are described below.

In order to collect data systematically throughout the focus groups, a focus group protocol was developed. The full protocol is included in Appendix I. The protocol was organized into eight sequential activities, plus breaks, intended to be completed within a four-hour timeframe. The focus group activities included:

- Introduction and Background
- Sign-in of SMEs
- Job Duties Exercise
- Review of Duties and Tasks
- Review of KSAOs
- Review of Competencies
- Review of Tools/Equipment
- Wrap-Up and Closing

The sequence of the focus group activities was organized such that the most important activities were completed first. Specifically, the review and discussion of duties, tasks, and KSAOs were critical to the job/task analysis process. During a few focus groups, in-depth discussions of these critical lists reduced the time available for completion of the review of the tools/equipment list or the competency list. Among these few situations, if time permitted such, the focus group facilitators instructed SMEs to complete their independent review of the lists, and group consensus was determined by job analysts' review.

Each of these activities is described below, as well as a discussion of other materials that were referenced or used during the respective activity.

Introduction and Background

The first 10 minutes of each focus group were devoted to a scripted introduction of the job analysts serving as the focus group facilitators, background about the project, and information about the role of the participating SMEs. Two facilitators were present at each focus group, such that while one facilitator worked with the SMEs, the other documented notes about the discussion and decisions made by the group. Following the facilitator introductions, a brief description of the project was provided including a description of the next steps in this research. The facilitator then explained the importance of gathering information about the BDO job from BDO incumbents and assured confidentiality of any information provided by the SMEs.

Note that at some locations, one (or more) TSA representative(s) was available to participate in the focus group introduction. As such, the TSA representative started the focus group by welcoming the SMEs on behalf of TSA, explaining the importance of their participation in this activity, and discussing TSA's goals in conducting the job/task analysis on the BDO job.

Sign-in of SMEs

During the next 5 minutes of the focus group, SMEs were asked to complete a Background Information Questionnaire. The questionnaire is included in Appendix J. The facilitators emphasized that the questionnaire should not include any SME's name in order to protect confidentiality. Information requested on the questionnaire included information about the SME's current work (e.g., job title), past job experiences related to his/her current work (e.g., prior TSA positions held, experience in security work), and other demographic information (e.g., educational attainment, age, race).

Job Duties Exercise

Next, approximately 15 minutes were set-aside to serve as a brainstorming session about the BDO job duties. This brief exercise was intended to get the SMEs thinking about their job and, specifically, the high-level work responsibilities they perform (i.e., job duties). This exercise served as a lead-in to the first major exercise in the focus group: the review of duties and tasks.

Review of Duties and Tasks

The review of duties and tasks was the longest and most difficult of the exercises conducted in the focus group. This task was originally estimated to take approximately 1.5 hours; however, most focus groups required 2 hours or more for this review. To begin, the facilitator(s) distributed two materials: (1) a handout of job/task analysis definitions and examples (see Appendix K), and (2) a copy of the duties and task list developed as a result of the preliminary phases of the job/task analysis. The facilitator used the Job/Task Analysis Definitions and Examples handout to explain what is meant by a "duty" and a "task" and to provide specific examples. Participating SMEs were encouraged to reference the handout (as needed) throughout the focus group.

Following a review of the definitions, the SMEs conducted independent reviews of the list of BDO duties (see Appendix L for a list of duties and tasks). Specifically, SMEs were instructed to review the list of 10 duties for comprehensiveness (e.g., are any duties missing?) and the need for any changes or modifications. SMEs were instructed to make any changes or additions to the list directly on their copy of the list. These lists would later be reviewed by job analysts to ensure that all SME perspectives were considered when finalizing the lists. The focus group facilitator then reviewed each BDO job duty on the list aloud and asked the SMEs to share any desired changes and/or inaccuracies. SMEs were also given an opportunity to provide recommended additions to the list.

Next, SMEs conducted independent reviews of the list of BDO tasks (see Appendix L). This list included 107 tasks. Of the 107 tasks, 95 were organized into the 10 duties reviewed and discussed previously. This organization of tasks was based on the headings and subheadings included in the SPOT SOP. The remaining 12 tasks were gathered from materials such as the TSA website and job vacancy announcements that outlined tasks relevant to TSOs. The purpose of including these tasks on the BDO task list was to determine if any TSO-related tasks were also performed by BDOs.

SMEs were informed that, because this list followed the SOP closely, AIR was aware that many tasks were repeated throughout the list. Therefore, one of the goals of this review was to identify and remedy these redundancies. In addition, the SMEs were asked to consider the comprehensiveness of the list, make changes to tasks to better reflect the BDO job, and add or delete tasks as appropriate. Again, SMEs were instructed to make any changes or additions to the list directly on their copy, so that these could be collected and reviewed by job analysts at a later time. The focus group facilitator then reviewed tasks by their assigned duty on the list and asked SMEs if they had any comments, changes, or additions. In addition, the focus group facilitator asked the SMEs to provide feedback on the organization of the tasks. This feedback was solicited to determine the most appropriate organization of tasks into duties for the BDO job.

Review of KSAOs

Following a break, SMEs were provided with a list of KSAOs (see Appendix M). To begin this exercise, the facilitator reviewed the definitions and examples of the terms knowledge, skills, abilities, and other characteristics, as provided on the Job/Task Analysis Definitions and Examples handout. However, the focus group facilitator emphasized that organizing requirements of the BDO job into one of these categories (i.e., K, S, A, or O) was not a requirement of this exercise, as these categorizations could be made by job analysts at a later time in the data collection process.

Approximately one hour was set aside for this exercise. SMEs independently reviewed the list of 56 KSAOs for missing KSAOs, redundancies, and clarity of wording. Following the independent review, the facilitator reviewed the list aloud and guided conversation regarding comments, changes, and additions to the list.

Review of Competencies

The next exercise, planned for approximately 15 minutes, was for the SMEs to review a list of TSA competencies (see Appendix N). The competency list included all the competencies included in the TSA Competency Catalog.¹² Following a review of the definition of competencies on the Job/Task Analysis Definitions and Examples handout, SMEs independently reviewed the list of 64 competencies. For this exercise, SMEs indicated a check (✓) next to any competency that they believed to be relevant to the BDO job. As this exercise occurred near the end of the focus group, the facilitator determined whether time permitted a group review and discussion of the list. If so, the facilitator went through the list to achieve consensus on the appropriateness of each competency to the current BDO job. If time did not allow this, job analysts later reviewed the SMEs' input and determined consensus based on the majority's responses.

Review of Tools/Equipment

Next, SMEs were given approximately 10 minutes to review a list of 14 tools and equipment used to perform the BDO job (see Appendix O). Specifically, SMEs were instructed to provide feedback on the comprehensiveness of the list and to ensure appropriateness for the current BDO

¹² Information found at: http://www.tsa.gov/assets/pdf/competencies_and_definitions.pdf.

job. Since this exercise occurred near the end of the focus group, the facilitator determined whether time permitted a group review and discussion of the list. If so, the facilitator went through the list to discuss additions, changes, and other modifications. If time did not allow this, job analysts later reviewed the SMEs' input and determined any required additions, deletions, or edits based upon the majority's responses.

Wrap-Up and Closing Remarks

Finally, the focus group ended with an opportunity for the SMEs to share any thoughts or comments about the BDO job that had not yet been covered. The job analysts were particularly interested in learning about the tasks (if any) that BDOs believed to be challenging on the job, including issues regarding fatigue. In addition, job analysts were also interested in hearing the SMEs' thoughts or suggestions related to training for the BDO job. Detailed notes of these discussions were recorded for further consideration by the job analysts.

The results of each focus group were a revised list of BDO tasks, KSAOs, competencies, and tools/equipment as edited by each focus group. In some cases, as noted previously, a focus group completed an independent review of any given list but did not have time to discuss the list as a group. In these cases, the job analysts reviewed the individual comments and suggestions documented on the SMEs' lists after the focus group to identify the group's consensus on changes, deletions, and additions to the list. In addition, the thoughts and suggestions shared by SMEs during the wrap-up and closing of each focus group resulted in information about training needs, issues of fatigue on the job (e.g., physical outcomes of standing for long periods of time, strategies for maintaining mental focus throughout a shift), and information about performance management (e.g., incorporation of BDOs into the Performance Accountability and Standards System [PASS]).

Summary of Information Gathered

Data from the focus groups was compiled across sites for each list (i.e., BDO tasks, KSAOs, competencies, tools/equipment) in Microsoft Excel worksheets. For each statement presented on a given list (e.g., task statement, KSAO, tool), consensus feedback from each site was indicated as follows:

- *Keep*: Statements deemed appropriate and accurate for the BDO job in the form in which they were presented.
- *Delete*: Statements deemed inappropriate or inaccurate for the BDO job.
- *Modify*: Statements for which changes were suggested. Specific modifications were indicated.
- *Add*: Statements that a site wished to include on a list.

To the right of the site-specific data, an additional column included notes, questions, and comments from any given site about a particular list item. To illustrate the compilation of site visit data, a small sample of the resulting task list data is included in Appendix P.

Post Site Visit Revision of Lists

Using the worksheets described above, job analysts who participated in the site visits reviewed the data resulting from each focus group to determine the final lists of BDO tasks, KSAOs, tools/equipment, and competencies. This process included several rounds of reviews and discussion by the job analysts in November and December 2009. It should be noted that the review and discussion of the BDO task list included redefining BDO duties and ensuring that the final list of BDO tasks was organized by the appropriate BDO duty. Decisions regarding each list item were recorded in a column or columns (depending on the number of reviews completed for the given list) to the right of other data in the respective Microsoft Excel worksheet.

This process resulted in comprehensive lists of BDO tasks, KSAOs, and tools/equipment. Since the competency list was based on the existing TSA Competency Catalog, it was managed differently. Rather than having job analysts achieve consensus on a list of competencies relevant to the BDO job, job analysts summarized the data gathered by indicating a summarized, relative rating of the appropriateness of each competency for the BDO job. The final lists of BDO tasks and KSAOs were included in the job/task analysis survey (see Conduct Job/Task Analysis Survey for a description of the survey development process and Appendix T for the survey itself). The final list of tools/equipment and summarized data regarding BDO competencies are included in Appendices Q and R, respectively.

BDO SME Selection and Training Recommendations

During the job/task analysis update, SMEs commented on and provided recommendations about the current selection and training procedures. Job analysts compiled these recommendations. The compilation of recommendations was organized into "Selection" (e.g., criteria, process), "Training" (e.g., content, resources), and "Other" (e.g., career progression) categories. Common themes include suggested revisions to the interview protocol used in the selection process, expressed interest in refresher courses, and comments regarding promotion opportunities and procedures. These recommendations are contained in Appendix S.

JOB/TASK ANALYSIS SURVEY

Purpose

After identifying comprehensive lists of BDO job tasks and KSAOs, the next step in the process was to develop and administer a job/task analysis survey. The purpose of the survey was to finalize the list of work activities and worker requirements (i.e., KSAOs) for the BDO job. The development, content, and deployment of the survey are described below.

Survey Development

The development of the survey involved determining the content, with a particular focus on the selection of task and KSAO rating scales. Two considerations were important in this selection. First, the type of rating scales appropriate for this survey was identified. Task/KSAO rating scales are commonly classified as being either “relative” (e.g., comparing the importance of one task/KSAO versus another) or “absolute” (e.g., asking how important a task/KSAO is for a job overall). Given the nature of the BDO job and the fact that SMEs were likely to perform different subsets of tasks, there was an increased likelihood that the use of relative scales would result in discrepant ratings across SMEs (Harvey, 1991). In addition, relative scales are unlikely to provide additional information beyond that given by absolute measures (Manson, Levine, & Brannick, 2000). Therefore, absolute rating scales were chosen for the present analysis.

Next, the specific ratings were identified with guidance from professional standards. Specifically, the EEOC et al. (1978) guidelines state that measures of task importance, frequency, and difficulty are essential when conducting job/task analyses. Likewise, the SIOP (2003) principles recommend identifying when KSAOs are required for adequate job performance in order to prioritize selection methods. Although additional rating scales may have provided more information, it was important to be mindful of the detrimental effects that numerous ratings can have on response rates and the quality of data (Knapp & Knapp, 1995). Therefore, five rating scales were used in the present study. These included Importance, Frequency, and Difficulty ratings for tasks. KSAOs were evaluated using ratings of when these attributes were required (i.e., before hire or after hire) and their importance. Each of these scales is described below in more detail.

The final stage of the survey development process was to conduct internal pilot testing. The purpose of the pilot test was to identify issues or problems with the survey format, rating sheets, and resulting data. In addition, the pilot test provided an opportunity to approximate the time required to complete the survey.

Survey Description

The BDO Job/Task Analysis survey was developed in Microsoft Excel, such that the workbook consisted of nine (9) worksheets. Each worksheet contained one section of the survey, as described below. A copy of final survey is included in Appendix T.¹³

Introduction: This section provided the respondent with an overview of the study being conducted and the purpose of the survey. In addition, this section described a high-level summary of the survey and the time required to complete it.

Instructions: This section instructed the respondent on how to complete the survey, such as how to move between and complete each section, how and when to save his/her work, how to submit the completed survey, and who to contact with questions, issues, or concerns.

Background Questionnaire: This section of the survey requested three (3) types of information from each respondent: (1) work experience (e.g., job title, other work experiences within TSA, length of time working as a BDO, prior work experiences), (2) education/training (e.g., level of education completed, SPOT-related training completed), and (3) demographics (i.e., gender, age, race/ethnicity).

Task Instructions and Task Ratings: These sections provided the instructions for completing the task ratings, as well as the task ratings sheet. The instructions guided the respondent through the scales on which tasks would be rated. The task ratings sheet included the final 110 tasks, organized into the following seven (7) job duties:

- Preparation;
- SPOT Behavior Observation and Analysis;
- SPOT Referral Screening;
- LEO Notification and Interaction;
- SPOT Reporting and Documentation;
- Other Security Operations; and
- Other Job Duties.

For each of the tasks, the respondent provided a rating of task frequency, importance, and difficulty to learn (as shown below).

Frequency: On average how **often** do you perform this task in your current job?

NP – This task is not performed by BDOs.

NA – I do not perform this task, but other BDOs at my airport do.

1 – Several times a year or less

2 – Monthly

3 – Weekly

4 – Once a day

¹³ Note that, due to their size, the survey included in the appendix does not include the full task and KSAO ratings sheets.

5 – More than once a day

Importance: How **important** is this task to successful completion of your current job?

NA – I do not perform this task.

1 – Not important

2 – Somewhat important

3 – Moderately important

4 – Very important

5 – Extremely important

Difficulty to Learn: How **difficult** is it to learn to perform this task?

NA - I do not perform this task.

1 – Not difficult

2 – Somewhat difficult

3 – Moderately difficult

4 – Very difficult

5 – Extremely difficult

KSAO Instructions and KSAO Ratings: These sections of the survey provided the instructions for completing the KSAO ratings and the respective ratings sheet. Respondents indicated when each of the final 116 KSAO statements was required (e.g., before hire, after hire) and rated its importance to the job (see the rating scales below for more detail).

When Required: When is this knowledge, skill, ability, or other characteristic (KSAO) **required**?

NA – This KSAO is not needed to perform the BDO job.

1 – Before initial BDO training. This KSA is needed immediately.

2 – Upon completed of initial BDO training. This KSAO is needed by the end of the initial BDO training.

3 – After starting the job.

Importance: How **important** in this KSAO to successful performance of the BDO job?

NA – This KSAO is not needed to perform the BDO job.

1 – Not important

2 – Somewhat important

3 – Moderately important

4 – Very important

5 – Extremely important

Work Context: This section included 11 questions about the context in which the BDO job is performed. For example, this section included questions related to possible physical and mental fatigue, as well as interactions with angry/aggressive passengers. Each item required a response to one of three rating scales, as appropriate for the given item: a Frequency scale (ranging from 1 – *Never* to 5 – *Always*), an Importance scale (ranging from 1 – *Not Important* to 5 – *Extremely Important*) and an Amount scale (ranging from 1 – *Very Little Walking/Standing* to 5 – *Walking/Standing during the entire shift*).

Other Comments: This final section of the survey provided respondents with an opportunity to provide any comments about the survey or the BDO job. In addition, this section included contact information for participants to request assistance, as well as a reminder of the survey submission instructions.

Survey Administration

The survey was administered in two phases: a pilot test and a live version. Each of these administrations is described below.

Pilot Test Version

The purpose of the pilot test was to ensure proper functioning of the survey and effectiveness of the instructions. In addition, the pilot test data were collected to provide insight into the quality and variability of the anticipated data. Approximately 48 hours prior to its administration, TSA contacted (via email) primary POCs at airports from which BDOs in the pilot test were selected in order to ensure the POCs' awareness of the request for some of their staff to complete the survey.

The pilot test version of the BDO Job Analysis Survey was electronically administered on 28 January 2010 to 22 BDOs. These BDOs were selected by TSA based on knowledge of BDO performance and availability. A copy of the invitation from TSA to SMEs is included in Appendix U. Completed surveys were due by close of business on 3 February 2010.

Live Version

SMEs that received the survey were selected from a TSA-provided sampling frame received in March 2010. To ensure that the BDO Job Analysis Survey data were representative of the BDO job, the sample of invited SME participants met the following established criteria:

- Represented 20% of the total BDO workforce;
- Represented geographic diversity across areas of the U.S.;
- Represented BDO programs at small, medium, and large airports;
- Included diversity in terms of BDO demographics, such as race/ethnicity and gender;
- Included BDOs with a minimum of 6 months of experience in the BDO program; and
- Included a representative sample of BDOs in terms of job title (i.e., Master BDO, Expert BDO).

Available demographic information for the BDO population is presented in Tables 8 and 9.¹⁴ As a whole, the BDO population is primarily male. As would be expected a larger percentage of the BDOs operate out of large airports than out of medium or small and more BDOs work in medium airports than in small. BDOs are also well dispersed across the country.

¹⁴ Some demographic information was available for the BDO population as a whole, making it possible to compare the sample and population with respect to airport size, airport region, tenure, gender, and age.

Table 8. Demographics for BDO Population

Demographic Variable	Percent
Gender	
Male	66.5
Female	33.5
Category (size)	
I (medium)	30.5
II (small)	15.6
X (large)	53.8
Region¹⁵ (location)	
East	41.2
Central	31.3
West	27.6

On average, BDOs are approximately 41 years of age, ranging from 21 to 73 years. The population includes both new and experienced BDOs, with an average tenure of 1.8 years. To ensure adequate data, however, the survey sample included only those BDOs who had worked at least 6 months on the job.

Table 9. Mean Age and Job Tenure (years) for BDO Population

Demographic Variable	Mean	SD
Age	41.5	11.1
Tenure as a BDO	1.71	.76

As listed above, a total of 20% of the BDO workforce was selected to participate in the survey. After selecting the sample, TSA noted that three (3) of the invited BDOs in the sample were “inactive.” In order to ensure timely deployment of the survey, these BDOs were removed from the sample, but not replaced.

The survey was sent to 578 SMEs¹⁶ on 9 March 2010 via email by TSA (see Appendix V for invitation). The original closing date was 23 March 2010, but this date was extended through the close of business on 30 March 2010 in order to increase the response rate. Several medium to large-sized airports had not yet provided any completed surveys as of 22 March 2010.

¹⁵ Regions were formed using a map of Federalized airports provided by TSA. For data analysis purposes twelve smaller regions were grouped into three larger regions. The “East” region is composed of regions 1, 2, 3, and 4; “Central” is composed of regions 5, 6, 7, 8; and “West” is composed of regions 9, 10, 11, 12.

¹⁶ After the survey was administered, AIR learned that the sampling frame included F – and G – Band BDOs, as well as STSMs. The Job/Task Analysis Survey section of this report provides information about how data from BDOs and STSMs were separated.

Survey Help Desk

A Survey Help Desk was operated during both the pilot test and live survey administrations to provide assistance and facilitate the survey process for survey participants. Survey participants could seek technical assistance and guidance regarding survey content by contacting the BDO Job Analysis Survey Help Desk via telephone between the hours of 8am and 5pm EST Monday through Friday or by email. Calls or emails received outside of those operating hours were addressed as soon as possible on the following workday. Four (4) job analysts involved in the study assisted with the Help Desk requests. Inquiries and resolutions were tracked in an Excel spreadsheet. A complete list of the questions/issues addressed by the Help Desk is included in Appendix W.

In total, the Help Desk addressed over 30 questions/issues about the survey. Anonymous concerns or questions were forwarded to TSA on an as needed basis. The following is a summary of the types of questions and issues received.

Survey Access Questions/Issues:

- Requests for the TSA national password required to open the survey
- Requests for the survey to be resent
- Questions/concerns regarding receipt of the survey (e.g., receiving the preliminary email indicating the survey would be deployed, but not yet receiving it; not being included in the invited sample)

Technical Issues:

- Issues with completing and/or navigating the survey in Excel (likely due to unfamiliarity with the program)
- Issues related to submitting completed surveys (e.g., requests to ensure receipt, misplacing a completed survey file before submitting)

Content Issues:

- Questions regarding the task frequency rating scale¹⁷

Other questions and issues received included those concerning the verification of AIR's role in the TSA study; a request for a new survey password,¹⁸ and requests to verify the Help Desk email address and the survey submission deadline.

¹⁷ Given the nature of the BDO job, the opportunity to conduct some job tasks is dependent upon the completion of other job tasks (e.g., briefing the STSM on the resolution to a secondary screening is dependent upon the occurrence of the secondary screening). In addition, BDOs working in smaller airports may have fewer opportunities to perform certain tasks. Therefore, some survey respondents requested assistance with determining an average frequency rating for some tasks.

¹⁸ One particular airport requested that the survey be encrypted with a different password so that the TSA national password was known only by the STSMs and other selected personnel within the airport.

Analyze Quantitative Job/Task Analysis Survey Findings

Method

This section describes the methods and procedures used to prepare and analyze the job analysis survey administered to BDOs. This section describes the steps that were taken to prepare the data and evaluate its quality, the data analysis process, and key findings.

Data Preparation Procedures

The BDO Job/Task Analysis Survey was administered by TSA via email to 578 BDOs from 9 March to 30 March 2010. Surveys were returned to AIR via email. Although all surveys were distributed in Microsoft Excel format, both Microsoft Excel files and Adobe .pdf copies of Excel files were returned. To create a master dataset, the data from individual surveys completed in Excel format were combined into a single, master Excel file that was then converted into SPSS format in preparation for data analysis. Completed surveys returned in Adobe .pdf format were entered manually into the master datasheet. Key entered data were then checked for accuracy by a second job analyst. Next, the data from pilot test surveys was combined with the field test data. Though these pilot test surveys were not included in the stratified random sample that was drawn to target specific survey recipients, these data were included because the job/task analysis survey did not change in content or format between the pilot and field test administrations.

Data Cleaning Procedures

Several steps were taken to ensure the quality of survey data prior to analysis. First, all Likert-scale items were checked for out of range values. For example, all 5-point scales were searched for impossible values such as a "6" or "99." Such values would indicate a problem with the electronic version of the survey (as out of range values could not be entered into the survey), issues with hand entry of data, or errors in the data transfer. No out of range values were found in the data.

Second, the dataset was examined for cases with excessive missing data. A large number of cases with missing data may indicate an issue with the survey itself or with the responses provided by a survey respondent. To identify cases with excessive missing data cases for which nearly all data was missing on each task or KSAO scale (defined as 95% or more of survey responses) were flagged. A total of four cases (of a possible 313) met this criterion and were flagged, and these four cases were removed from further analyses. Because of the low prevalence of cases with excessive missing data (4 of 313 surveys) the removal of these four cases is not a cause for concern. Based on this process, a total of 309 usable surveys were included in the final dataset.

Approach to Data Analysis

To analyze the results for the task importance, frequency, and difficulty ratings as well as the KSAO importance ratings, means and standard deviations were computed and both minimum and maximum scores were identified. For the KSAO "when required" scale, frequencies for each response option (before initial BDO training, after completion of initial training, after

starting the job) were computed. The frequencies for “NA – I do not perform this task”¹⁹ and “NP – This task is not performed by BDOs” responses were also computed for each of these scales when appropriate. To analyze the work context items a mean and standard deviation was computed.

Group differences for task importance, KSAO importance, and work context were also examined to determine whether ratings differed across airport categories or regions. Last, interrater agreement was computed in order to evaluate the extent to which BDOs agreed on their survey responses. A summary of the data analysis procedures used is presented in Table 10.

Table 10. Summary of Data Analysis Procedures for Each Survey Scale

Survey Scale	Mean	Standard Deviation	Response Frequencies	Comparison Across Airport Categories	Comparison Across Airport Regions	r_{wg}
Tasks						
Importance	*	*		*	*	*
Frequency	*	*				*
Difficulty	*	*				*
KSAOs						
Importance	*	*		*	*	*
When Required			*			
Work Context	*	*		*	*	*

Comparison of Manager and Non-Manager Ratings

Empirical research literature has alternately suggested both the similarity and discrepancy of job analysis ratings provided by managers and non-managers (see Manson et al., 2000; Wilson, 2007). Discrepant ratings provided by these two groups of raters could reduce the observed levels of interrater agreement and increase the standard deviation of job analysis ratings. Furthermore, these discrepancies could potentially have an effect on overall mean ratings to the extent that the substantive conclusions of the study are influenced. A discrepancy between these two sets of raters might suggest the need to exclude managers from further analysis. Conversely, similarity between these two sets of ratings would suggest the possibility of examining the ratings from non-managers and managers as a single group. Managers were not intended to receive these surveys, and as such all sampling and analyses were initially planned to be conducted with non-managers only. While including managers' data would be beneficial due to an increased sample size, including discrepant ratings would be problematic and would outweigh this benefit. Because of this, survey results from managers (n = 39) and non-managers (n = 270) were compared.

¹⁹ The complete NA response option read, “I do not perform this task, but other BDOs at my airport do.”

To examine the data for potential differences in job analysis ratings between these two groups, a grand mean was computed across all items within a given scale. This yielded an overall mean for the task importance, frequency, and difficulty scales as well as a grand mean for the KSAO importance scale (presented in Tables 11 and 12). Comparing these results, managers generally provided higher ratings than non-managers for task frequency, difficulty, and KSAO importance. Second, the average percentage of “NA” ratings across all items in each scale was computed and compared across groups. For task statement ratings, managers were more likely than non-managers to rate an item “NA,” indicating that BDOs do not perform the task. These percentages suggest that managers were more likely than non-managers to be either unwilling to rate an item, unable to rate an item, or had perceptions of BDO work that differs from non-managers.

Table 11. Comparison of Task Ratings’ Grand Means Across Management Status

Status	Frequency				Importance			Difficulty		
	mean	SD	NA	NP	mean	SD	NA	mean	SD	NA
Non-Management	2.97	1.14	6.4%	5.3%	4.53	0.72	9.2%	1.65	0.95	10.1%
Management	3.36	1.18	20.7%	2.4%	4.59	0.63	19.6%	1.99	1.18	19.4%

Table 12. Comparison of KSAO Ratings’ Grand Means Across Management Status

Status	Importance			When Required
	mean	SD	NA	NA
Non-Management	4.46	0.74	2.6%	3.4%
Management	4.62	0.59	0.7%	0.7%

Finally, quantitative findings on differences between managers and non-managers were supplemented by an examination of qualitative data (see Appendix DD for these data). The comments provided by managers suggested that managers may have had more trouble than non-managers when completing the survey scales. Specifically, some comments indicated managers attempted to provide ratings to the survey items based on their work “on the floor” (working as a BDO). In contrast, other comments indicated that some managers rated the items from a “manager’s perspective,” which respondents noted caused a need for more “NA” ratings. Furthermore, some comments indicated that managers completed the survey using both of these approaches (i.e., by rating some items based on their knowledge of the BDO job and rating others based on their role as a manager).

Overall, these results suggest that managers and non-managers have differing perceptions of BDO work and may have used distinct approaches to complete the survey. Additionally, it was unclear what approach BDO managers took when completing the survey (filling out the survey as a manager, completing as a BDO, or a combination of both approaches). Therefore managers and non-managers were examined separately rather than as a single sample. The remainder of the survey results and conclusions drawn from this data are based only on the surveys received from non-managers (n = 270). Survey results for managers are contained in Appendix X but are

not discussed further in this section of the report. Data in Appendix X should be interpreted with caution given that the survey participants completed the survey taking different perspectives.

Participants

As noted above, 578 surveys were distributed to a stratified random sample of SMEs. AIR received surveys from 243 of those invited participants, representing a response rate of 42%. AIR also received surveys from 70 additional SMEs. These participants were not included in the original sampling frame and were not sent a copy of the survey to complete. A comparison of the airport characteristics (region and category) of uninvited survey participants and invited participants indicated that the two groups were similar. Therefore, data from uninvited survey participants were included in the dataset.

With both invited and invited surveys included, a total of 313 surveys were returned. Following data cleaning, there were 309 useable surveys. Most (270) of the surveys were from non-managers and are the focus on this report. Therefore, this section contains demographic information for non-management survey participants, and management demographic information is presented in Appendix Y. Where possible, comparisons are also made between the non-management sample and the BDO population as a whole.

The non-management sample consisted of 270 BDOs working for TSA at the time of the survey administration. The majority of BDOs surveyed were male (66.2%), non-Hispanic or Latino (86.5%), and White (69.4%). The gender make-up of the sample was the same as the population. In general the BDOs surveyed are well educated; most (43.3%) had some college-level education, and more than a third (38%) held an Associate's degree or higher. Most of the sample (74.4%) indicated that they were a Master BDO (F-Band) and roughly one quarter (23.3%) indicated that they were an Expert BDO (G-Band). A negligible number of survey respondents indicated that they were either on the National Standardization Team or were a National Trainer. This information is presented in Table 13. Only a small percentage of survey respondents (1.9%) worked for TSA part-time (see Table 14).

Table 13. Highest Education Completed, Gender, Ethnicity, Race, and Job Title

Demographic Characteristic	n	Percent
Highest Level of Education Completed		
High School/GED	43	16.3
Some college	114	43.3
Associate's degree	26	9.9
Bachelor's degree	65	24.7
Master's degree	9	3.4
Other ²⁰	6	2.3
Gender		
Male	178	66.2
Female	91	33.8
Ethnic Category		
Hispanic or Latino	34	13.5
Not Hispanic or Latino	217	86.5
Racial Category		
American Indian or Alaska Native	0	0.0
Asian	16	5.6
Black or African American	41	14.2
Native Hawaiian or Other Pacific Islander	3	1.0
White	200	69.4
Other	21	7.3
Two or more	7	2.4
Current Job Title		
Master BDO (F-Band)	201	74.4
Expert BDO (G-Band)	63	23.3
Unspecified Non-Management	6	2.2
Auxiliary Job Title		
National Trainer	3	1.1
Standardization Team Member	4	1.5

Table 14. Current Work Status

Work Status	n	Percent
Part-Time (< 40 hours)	5	1.9
Full-Time (≥ 40 hours)	262	98.1

²⁰ Examples include: technical/trade schools (3), current student (1), unspecified post college graduate (1), and travel school (1)

Survey participants reported an average age of roughly 43 years (42.8). This is similar to the average age (41.5) of the BDO population. The employees surveyed had, on average, worked for TSA for over six years (6.6), and had an average tenure as a BDO of 2.6 years. By design, the survey sample had higher job tenure than the general population (1.7 years). The sample data are presented in Table 15.

Table 15. Mean Age, Job, and Organization Tenure (years)

Age or Tenure Variable	Mean	SD	Minimum	Maximum
Age	42.8	11.6	23	68
Tenure with TSA	6.6	1.9	2.6	8.8
Tenure as a BDO	2.6	0.7	0.9	5.3

Most BDOs (52.2%) indicated they had received Additional Behavior Detection Training (ABDT) while 19.8% had received additional training beyond the ABDT or initial SPOT training programs (see Table 16).

Table 16. Training Experience

Training Experience	n	Percent
Additional Behavior Detection Training		
Yes	140	52.2
No	128	47.8
Additional Training Beyond ABDT Course and BDO/SPOT Training		
Yes	51	19.8
No	207	80.2

Survey participants were also asked about the characteristics of the airport at which they worked. Based on the goals of the stratified sampling frame that was created for survey distribution, each category and region should be well represented. Review of the available population demographic information confirms that, although there may have been a slight over sampling from small airports and under sampling from large airports, the sample is very similar to the population. The results of these demographic items are presented in Table 17. Most non-management employees indicated that they worked in a large airport (41.4%) in the central region of the country (38.8%). However, no category or region was significantly over or under represented. A complete list of all airports from which BDOs responded to the survey is presented in Appendix Z.

Table 17. Category (size) and Region (geographic location) of Airports Represented

Airport Category or Region	n	Percent
Category (size)		
I (medium)	96	35.8
II (small)	61	22.8
X (large)	111	41.4
Region (location)		
East	80	29.9
Central	104	38.8
West	84	31.3

For the majority of these respondents, their first job title in the BDO program was that of Master BDO (F-Band). Most survey respondents (51.5%) entered the BDO career path after serving within the TSO Full-Performance position (i.e., E-Band) (see Table 18).

Table 18. Previous TSA Positions Held By Respondents

Previous TSA Position	n	Percent
First Job Held in BDO Program		
Master BDO (F-Band)	224	83.6
Expert BDO (G-Band)	32	11.9
Other (Non-BDO)	9	3.4
Unspecified Non-Management (BDO)	3	1.1
Position Held Prior to Entering BDO Program		
TSO Basic (D-Band)	40	14.9
TSO Full Performance (E-Band)	138	51.5
Lead TSO (F-Band)	62	23.1
Supervisory TSO (G-Band)	19	7.1
Unspecified Non-Management	8	3.0
Other (Non-BDO)	1	0.4

Nearly a third of the respondents (29.6%) indicated having previous worked in the security industry. Of those with previous security experience, 21.3% had worked in airport security for an average of 8.6 years (see Tables 19 and 20). A similar portion of the sample (31.5%) had previous military experience before joining the TSA. On average, these individuals had served in the military for 10.0 years (see Table 20).

Table 19. Previous Work Experience

Previous Work Experience	n	Percent
Worked in Security Industry		
Yes	80	29.6
No	190	70.4
Worked in Airport Security²¹		
Yes	17	21.3
No	63	78.8
Worked in Law Enforcement		
Yes	36	13.5
No	231	86.5
Served in the Military		
Yes	84	31.5
No	183	68.5

Table 20. Mean Years in Related Professional Fields (years)

Professional Field	Mean	SD	Minimum	Maximum
Security Industry	8.6	7.7	1.2	27.8
Military	10.0	6.7	3.4	24.3

Results

This section describes the results of the task ratings, KSAO ratings, and work context items. Comparisons across airport characteristics (e.g., airport category, geographic region) and interrater agreement results are also provided.

Task Ratings

Task ratings for each item are presented in Tables AA-1, AA-2, and AA-3 in Appendix AA. Task frequency ratings form a relatively normal distribution, which means that most tasks were rated around the midpoint of the scale and fewer tasks were rated at the extremes of the scale (either rated very high or very low frequency of performance). Mean ratings for the tasks ranged from 1.33 to 4.98. A somewhat large number of tasks were rated as occurring very frequently (20 tasks have ratings of 4.69 and above). Below are some examples of tasks that BDOs perform repeatedly throughout the day:

- *Position and reposition oneself to optimally observe individuals and stress points and permit effective communication with BDO team member(s)*

²¹ This item was a follow-up question to the previous, thus the reduced number of respondents.

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- (b)(3):49 U.S.C. § 114(r)
- *Mentally calculate points accumulated during observation of passengers exhibiting SPOT behaviors or appearance factors*

Overall, the results suggest that large differences exist across tasks with regards to their frequency of performance. Furthermore, comments (by telephone and in written form on the surveys) from the SMEs indicated difficulty with the frequency scale. One concern was that the frequency with which a particular task is performed varies vastly depending on circumstances. For example, there are times when a BDO will conduct a casual conversation more than once per day and there are times when a month or more will pass before that same BDO will conduct a casual conversation. Due to the variability of the job itself, the tasks did not lend themselves well to this scale. Given the inherent difficulties, job analysts did not include the frequency ratings in decisions about the tasks.

The task importance ratings form a very negatively skewed distribution, which means that most tasks were rated very high on importance. Of the 110 task statements, only six have a mean rating of less than 4.0, with mean ratings ranging from 3.22 to 4.95. These results show that BDOs rated nearly all of the tasks as very important to the BDO job. These results are not surprising, however. The task statements were created and revised using multiple methods and sources of information, and were reviewed and revised extensively by SMEs. Accordingly, the skewed importance ratings evident here likely reflect these efforts to create accurate task (and KSAO lists) rather than potential issues with the survey or rating scales.

In contrast to the task importance scales, the task difficulty ratings form a skewed positive distribution with means ranging from 1.05 to 2.44. This indicates that most tasks were rated relatively low on the difficulty scale (below 3.0). In fact, all but nine tasks yielded a mean rating of less than 2. Below are tasks with the highest mean ratings. These were judged as somewhat difficult to learn to perform:

(b)(3):49 U.S.C. § 114(r)

These results suggest that in general BDOs do not find the tasks included on the survey difficult to learn to perform.

Task criticality scales. Task criticality scales are composite scores used to combine multiple sources of data, such as task importance and frequency ratings (scales are often combined using addition, multiplication, creating mean scores, or other similar methods), to identify the most critical tasks of the job being analyzed (see Sanchez & Fraser, 1992; Sanchez & Levine, 1989).

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WARNING: THIS RECORD CONTAINS SENSITIVE SECURITY INFORMATION THAT IS CONTROLLED UNDER 49 C.F.R. PARTS 15 AND 1520. NO PART OF THIS RECORD MAY BE DISCLOSED TO PERSONS WITHOUT A "NEED TO KNOW," AS DEFINED IN 49 C.F.R. PARTS 15 AND 1520, EXCEPT WITH THE WRITTEN PERMISSION OF THE ADMINISTRATOR OF THE TRANSPORTATION SECURITY ADMINISTRATION OR THE SECRETARY OF TRANSPORTATION. UNAUTHORIZED RELEASE MAY RESULT IN CIVIL PENALTIES OR OTHER ACTION. FOR U.S. GOVERNMENT AGENCIES, PUBLIC DISCLOSURE GOVERNED BY 5 U.S.C. 552 AND 49 C.F.R. PARTS 15 AND 1520.

A benefit of computing task criticality is that multiple sets of ratings can be combined into a single index that is used to make decisions about selection or training criteria. However, a primary drawback of criticality scales is that the decisions about how to weight the various ratings that are to be combined (for example, task importance and frequency) are difficult.

In the present job analysis, a task criticality scale was not computed for several reasons. First, the nature of the tasks led to significant concerns regarding how to weight task importance and frequency in a criticality scale. For example, a task that is performed infrequently by BDOs but has a high importance rating would have the same criticality value as a frequently performed task that was rated as relatively unimportant. Second, an examination of the survey responses revealed that most task importance ratings were very high, and therefore there was very little difference between task importance ratings. In contrast, the task frequency scale showed a larger range of responses, from very infrequent to very frequent. Because the task importance scale had very few differences in ratings when compared to the task frequency scale, the task frequency scale carried a much heavier weighting when measures of criticality were computed. Given these concerns and the fact that the SMEs reportedly had difficulty with the frequency scale, task importance ratings were considered alone rather than through the creation of a composite criticality score.

KSAO Ratings

The mean KSAO importance ratings are presented in Table AA-4 in Appendix AA. Similar to the task importance ratings described above, the distribution of ratings was very negatively skewed, which means that most items were rated very highly. Of the 116 KSAOs rated by survey participants, only 15 KSAOs had a mean rating below 4.0, suggesting survey participants overwhelmingly judged the KSAOs presented on the survey to be important for completing BDO work. However, as was described above, such skewed ratings for these importance scores were expected based on the survey instrument's thorough development process.

Frequency results for the "when required" KSAO scale are presented in Table AA-5 in Appendix AA. Results suggest that some KSAOs are needed prior to hire, some are needed upon completion of the initial training program, and some are needed after starting the job. This distinction is especially important because hiring practices should focus on KSAOs that an employee needs at the time of hire. Therefore, the KSAOs were categorized into KSAOs that could be used for selection (KSAOs needed prior to hire) and KSAOs that could be acquired or developed through training (KSAOs that are needed only after either the initial training or after starting the BDO job).

One way to accomplish this goal is to identify KSAOs that the majority of survey respondents rated as needed before hire. For this job/task analysis, AIR defined "majority" as two-thirds (67%) of the sample.²² Thus, KSAOs rated as needed before hire by at least 67% of the sample were categorized as "selection" KSAOs. The results in Table AA-5 in Appendix AA display the

²² This criterion corresponded to ratings provided with respect to the minimum qualifications of the job (e.g., "ability to lift and carry baggage weighing up to 70 pounds"). That is, 67% of the sample indicated that those minimum qualifications were needed before hire.

KSAO ratings and their categorization into “selection” versus “training” KSAOs. Some examples of KSAOs that are best suited for selection include:

- *Able to work in a reliable, responsible, and dependable manner*
- *Skill in oral communication*

Some examples of KSAOs that can be developed through training activities include:

- *Knowledge of deception cues and appearance factors*
- *Skill in conducting an effective casual conversation to obtain resolution*

The next step with respect to the KSAO “when required” data would be for the job analysts to review the KSAOs as the SMEs did and make scientific judgments about how to categorize the KSAOs. The SME ratings provide a good starting point for this next step.

Work Context Ratings

Work context items are presented in Tables 21 through 23. The tables include the rating scales, survey items, sample sizes, means, and standard deviations. As is shown in Table 21, the BDO job requires a significant amount of standing and walking. Nonetheless, standing and walking do not tend to affect job performance (see Table 22).

Table 21. Standing/Walking Work Context Items

Amount				
(1) Very little to none	(2) Some	(3) A moderate amount	(4) A significant amount	(5) During the entire shift
Question	N	Mean	SD	r_{wg}
How much standing does your current job require?	265	4.64	0.50	0.87
How much walking does your current job require?	265	3.82	0.76	0.71

The results presented in Table 22 also suggest that unpleasant, angry, or discourteous passengers are frequently part of the job, however physical aggression from passengers is rarely part of the job. These results correspond to some of the remarks shared by BDOs on the site visits and in the comments section of the survey. For example, some passengers are quite vocal when complaining that BDOs are not helping move the process along (e.g., bringing more bins, opening more lanes) or are asking them to submit to additional screening.

Table 22. Interpersonal Interactions and Physical Conditions Work Context Items

Frequency					
(1) Never	(2) Rarely	(3) Occasionally	(4) Frequently	(5) Always	
Question		N	Mean	SD	r _{wg}
How frequently does standing on your current job for long periods of time affect your ability to perform?		265	2.48	1.04	0.46
How frequently does walking on your current job for long periods of time affect your ability to perform?		265	2.12	0.97	0.53
How frequently are you required to make decisions that affect other people in your current job?		265	3.71	0.97	0.53
How frequently do you have to deal with unpleasant, angry, or discourteous individuals as part of your current job requirements?		265	3.63	0.79	0.69
How frequently does your current job require you to deal with physical aggression of violent individuals?		265	2.02	0.78	0.70
How frequently does your current job require working outdoors, exposed to all weather conditions?		265	3.05	0.85	0.64

As is shown in Table 23, repetitive mental activities are very important to the BDO job, as is being exact and accurate and making decisions that affect others. These results are not surprising given the nature of the BDO work, especially when one considers both the behavior observation and analysis and casual conversation pieces of the job. In addition, the BDOs frequently work in teams and occasionally work outdoors.

Table 23. Attention to Detail Work Context Items

Importance					
(1) Not important	(2) Somewhat important	(3) Moderately important	(4) Very important	(5) Extremely important	
Question		N	Mean	SD	r _{wg}
How important is repeating the same mental activities (e.g., behavior observation) over and over, without stopping, to performing your current job?		265	4.36	0.87	0.62
How important is being very exact or highly accurate in the observation and analysis of behaviors to performing your current job?		265	4.73	0.50	0.87
How important is it to work with others in a group or team in your current job?		265	4.58	0.62	0.81

Overall, these work context results speak to the recent expansion of the BDO job. For example, some of the Playbook operations (such as Aviation Direct Access Screening Program [ADASP], perimeter patrols, and parking patrols) have increased the amount of walking and outdoor exposure BDOs experience. Likewise, not only are the BDOs partnering more within the SPOT program, the plays have increased the extent to which BDOs partner with people outside of the SPOT program (e.g., TSOs, LEOs, Customs and Border Patrol Officers, Canine Officers).

Comparisons Across Airport Categories and Regions

As noted above, the survey was created from the results of data obtained through interviews, focus groups, and observations that occurred during site visits by job analysts. Job analysts visited both small (Category II), medium (Category I), and large (Category X) airports as well as airports in the Eastern, Central, and Western geographic regions of the U.S. The information collected during the visits suggested that there may be differences in the BDO job across airports. For example, BDOs in the small airports may be more likely to perform supervisory-type tasks because STSMs are not always on site.

To examine whether these differences are present in the survey findings, job analysts compared ratings for tasks, KSAOs, and work context items across groups (i.e., by airport size and region) by completing analyses of variance (ANOVAs) and Tukey's post-hoc tests. Various analytical approaches would have been appropriate for these analyses. Of course, each data analysis approach is associated with its own benefits and drawbacks. One concern associated with using ANOVA for analyses such as these is that the sheer volume of analyses (i.e., 86 for the tasks, 103 for the KSAOs, and 11 for work context items) would increase the odds of spurious (i.e., artificial) results. In this case, however, job analysts chose the liberal approach of the ANOVA.

With the ANOVA, the analysts erred on the side of finding differences, but they also increased the interpretability of those results. To counterbalance the liberal nature of the ANOVA with the scientific scrutiny required for job analysis, the job analysts conducted a bonferroni correction²³ and evaluated effect sizes (eta squared or η^2)²⁴ to judge the meaningfulness of the results.

Despite using the liberal ANOVA approach and a critical value of $p \leq .001$, group comparisons did not yield significant results. Furthermore, according to the effect size analyses, results that were close to meeting this criterion still did not represent meaningful differences. Thus, the results suggest that few differences exist across both airport categories and geographic region.

Interrater Agreement

Interrater agreement was calculated for the task, KSAO, and work context ratings. This evaluation is useful for examining the extent to which BDOs agreed on their ratings. A great deal of agreement among raters suggests that the results are relatively stable across individuals. In contrast, low agreement suggests that these ratings differ across raters. The job analysts used two metrics to evaluate agreement among ratings.

First, percent agreement was used for the categorical KSAO scale, "when required" (i.e., before hire, upon completion of initial training, after starting the job). The data corresponds to the survey results presented above. For 93 (80%) of the KSAOs, at least 60% of the participants

²³ After a bonferroni correction, p-values for the ANOVAs needed to be $<.0004$ to qualify as a statistically significant difference. Because it was highly unlikely that the observed p-values would be observed below such a low critical value, $p <.001$ was used instead.

²⁴ To evaluate the magnitude of an effect size, Cohen (1988) set the following guidelines: 0.01 = small effect, 0.06 = medium effect and 0.14 = large effect. Cohen (1988) provided these guidelines for interpreting regression effect sizes (R squared or R^2), but they are also used to interpret ANOVA eta squared (η^2) values.

chose the same category. For the remaining 20% of the KSAOs, the ratings did not indicate such obvious agreement. This disagreement, however, is logical. For example, several of the KSAOs on which the SMEs disagreed were supervisory in nature (e.g., *Skill in motivating team members to achieve group goals, Knowledge of the time and/or staffing requirements associated with work assignments, training, and security operations*). As is described elsewhere in this report, BDOs disagree about the extent to which BDOs perform or should be performing tasks that would require supervisory skills. Thus, one could expect disagreement about when the KSAOs would be required. Overall this level of interrater agreement is adequate for the job/task analysis, especially because decisions about the selection/training categorization will likely depend on a second review completed by job analysts.

Second, job analysts calculated r_{wg} (James, Demaree, & Wolf, 1984; James, Demaree, & Wolf, 1993) to evaluate interrater agreement for the continuous scales: task frequency, importance, and difficulty and KSAO importance. There is some debate about the best approach to evaluating whether the level of agreement (i.e., r_{wg}) is acceptable. For the job/task analysis, AIR used a conservative approach proposed by Dunlap, Burke, and Smith-Crowe (2003). Following this approach, AIR used a critical value of .12 to establish the statistical significance of the r_{wg} values. Thus, r_{wg} values at or above .12 were considered significant, indicating that the raters agreed beyond what we would expect due to chance.

The interrater agreement (r_{wg}) for the task and KSAO ratings is located in Tables AA-1, AA-2, AA-3 and AA-4 in Appendix AA. Agreement for the work context items is included in Tables 21 through 23 above. Value ranges are presented in Table 24.

Table 24. Ranges of r_{wg} for Task, KSAO, and Work Context Ratings

Scale	Range of r_{wg} Values
Task Frequency	-.59 to .99
Task Importance	-.09 to .97
Task Difficulty	.04 to .96
KSAO Importance	.12 to .95
Work Context Items	.46 to .87

Overall, interrater agreement was quite good. All of the KSAO importance ratings and the work context ratings met or exceeded the critical value for significant interrater agreement. Within the task importance ratings, only two tasks (*Provide customer service by directing passengers or answering questions, as needed* and *Perform TDC functions, as needed*) failed to meet the critical value. Given their controversial nature, it is not surprising that these tasks engendered disagreement. Likewise, within the task difficulty ratings, only one task (b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r) failed to meet the critical value. It is understandable that such a technique would be more difficult for some to master than for others.

Ratings for task frequency, however, were not as consistent. Only 48% of the tasks ratings for this scale met the .12 critical value. Nonetheless, this lack of agreement regarding task frequency is not surprising. As noted above, due to the variable nature of the job, SMEs had difficulty using this scale to rate the tasks.

In sum, with the exception of the task frequency ratings, nearly all of the ratings evidence agreement beyond what would be expected due to chance. Thus, most reached an acceptable level of agreement. For those few tasks that did not reach significance, results should be interpreted with caution.

Discussion of Findings

This section describes the analysis and results of the quantitative data gathered from the job/task analysis survey. Descriptive statistics for task, KSAO, and work context items were computed. These results revealed that some tasks were rated as frequent, whereas others were rated as infrequent. On the other hand, all were deemed important and nearly all were not difficult to learn. Similarly, all of the KSAOs were deemed important. KSAOs were also categorized in terms of selection and training according to when they would be needed for job performance. In general, no meaningful differences were evident across either airport size or geographic region. With two exceptions, participants agreed on task and KSAO importance ratings beyond what would be expected due to chance.

Analyze Qualitative Job/Task Analysis Survey Findings

At the end of the BDO Job Analysis Survey, respondents were provided an opportunity to type in "any additional comments about the job or the survey." Comments were provided by 150 survey respondents. These comments were reviewed and coded systematically, using a team of job analysts. The methods and results of this process are described below.

Methods

At the close of business on the original survey close date (23 March 2010), 131 surveys (including those received from the pilot test) included respondent comments. A 20 percent sample (27 surveys) of these surveys was randomly selected from which to build a set of coding categories. To identify these categories, three job analysts independently reviewed the sample and identified the category or categories into which the comments could be coded. The independently-generated results were reviewed and consensus was reached on a set of 44 categories that were organized into seven higher-level categories. These categories were then used to code the entire sample of respondent comments. Comments could be assigned to one or more categories, depending upon the content of the comment. That is, many individual comments covered multiple topics, and therefore required assignment to multiple categories.

At the close of the survey, 150 surveys included comments.²⁵ To code this entire sample, which included the 20 percent sample used to develop coding categories, the comments were divided into thirds. Each of the three job analysts was responsible for independently coding two-thirds of the data, such that two analysts reviewed and coded each comment.

During the coding process, the diversity of comments required additional coding categories that had not been previously identified to categorize the data. As such, 14 coding categories were added, resulting in a total of 58 coding categories, as presented in Table 25.

Table 25. Qualitative Data Coding Categories

Category	Sub-Category
BDO Job	Tools/Equipment (i.e., Phones/Radios, Shoes, SPOT Assist Cards, SOP)
	Other Security Operations (i.e., General, ADASP, VIPR, Playbook, Plain Clothes)
	Additional Job Duties (i.e., IVCC, TDC)
	Expanded Authority (i.e., Supervisory-type Responsibilities; LEO-type Responsibilities)
	Resources
	Work Conditions (i.e., Safety, Fatigue, Schedule)
	Job Satisfaction
Selection	Criteria (i.e., Standards, Background/Experience, KSAOs/Competencies)
	Process
Training	Initial Training
	Initial Training Refresher (i.e., General, Indicators, Casual Conversation)
	Additional Training (i.e., General, ABDT, OLC, TDC, IDs/Fraudulent Documents, Surveillance, Law Enforcement)
	Training for Managers
SPOT Program	Overall
	Leadership (i.e., Manager Presence, Management Support, Manager Background)
	Standardization Team (i.e., Visits, Importance)
	Program Satisfaction
	Passenger Selection
	Seniority
	Communication/Information Dissemination
	Pay
	Structure
	Improved Relationships
	Airport Differences

²⁵ Note that further data cleaning identified duplicate survey submissions; therefore, this number includes some duplicates that were not identified until later in the qualitative data analysis process.

Table 25. Qualitative Data Coding Categories (Continued)

Category	Sub-Category
Performance Management	Probationary Period/Mentoring
	PASS
	Career Path
	Managing Under-Performance
Job Analysis Survey	Rating Scales
	Content Relevance
	Survey Format/Design
	No Comment
Miscellaneous	<i>(Includes "other" comments such as respondent recommendations and special requests)</i>

Interrater agreement was calculated as the average percent agreement across comments. Job analysts first summed the number of disagreements per comment. Percent disagreement was then calculated by dividing the number of disagreements by the total number of categories used for that comment (i.e., instances in which one or more analysts coded a comment into a particular category). Subtracting the value from 100 provided the percent agreement. Finally, an average across categories provided an overall interrater agreement of 68.74%.

Given the nature of this task, an agreement level of 69% is quite good. For example, the analysts were free to code each comment into as many categories as they felt was appropriate. Most of the comments covered multiple topics; so, comments rarely fell into just one category. Furthermore, although the intention was to create conceptually distinct categories, two categories ("Miscellaneous" and "SPOT Program Overall") ended up overlapping in practice. Thus, they were often used interchangeably by the analysts. Disagreement about whether to place a comment into "Miscellaneous" versus "SPOT Program Overall" occurred 26 times, representing 15% of the disagreements.

Following the independent coding, the job analysts reviewed the coding results and achieved consensus. Any discrepancies that could not be resolved by the two analysts who had coded a given comment were resolved by the third analyst.

Results

Once all qualitative data were coded and the final codes for each comment were documented, the data were linked back to their respective background questions, such that the job title of each respondent could be identified. These data were then divided into "non-managers" (i.e., BDOs) and "managers" (i.e., STSMs). A total of 129 BDOs and 21 STSMs provided comments. To maintain respondent anonymity, all comments were de-identified, such that references to information including respondent name, contact information, gender, airport name, or airport city were removed within the comment. Qualitative data, organized by "non-managers" and

“managers” are included in Appendix BB. Themes that were identified from the job incumbents are highlighted below.

BDO Job

This category included topics such as tools/equipment, additional job duties, work conditions, and job satisfaction. Examples of comments include the following:

- The desire for better (e.g., more discreet, more reliable) and more uniformly-distributed communication equipment (e.g., phones and radios)
- Statements about the removal of the SPOT Assist Cards, which several BDOs felt was a useful tool that had been taken away from the BDO workforce as a result of the irresponsibility of a few BDOs
- Concerns about the physical strain caused by walking and standing all day, as well as the mental fatigue resulting from performing the same activity over and over during a shift

BDO Selection

This category included topics related to selection criteria and the selection process. Examples of comments include the following:

- Recommendations and support for specific job-related KSAOs, or competencies, such as social skills, ability to work in a team, ability to work independently, and critical thinking
- Recommendations and/or concerns about the selection process, such as suggestions for minimizing perceived bias in the process (e.g., using managers from other airports to conduct the interviews)

Training

This category included comments related to the initial course and other BDO training. Themes in the “training” category included opportunities for initial training refreshers and the desire for additional training. Examples include:

- The desire for opportunities for initial training refreshers, as respondents shared concerns with skill degeneration without refresher training on topics (b)(3):49 U.S.C. § 114(r)
(b)(3):49 U.S.C. § 114(r)
- The desire for additional training in general and on specific topics, (b)(3):49 U.S.C. § 114(r) and BDO-specific Online Learning Center (OLC) courses

SPOT Program

This category included a number of topics, such as management support, communication/information dissemination, and program satisfaction. Examples of comments include:

- Concerns about the lack of local support for the BDO program
- Concerns about the evolution of local policies and procedures (e.g., procedures concerning who may notify LEO as needed; policies to establish distinctions between F- and G-Band responsibilities; informal policies regarding task prioritization)

- The desire for better information flow from management to the BDO workforce and to obtain more job-related Intelligence, such as Government-monitored drug or gang activity

Performance Management

This category included topics such as mentoring, PASS, and the BDO career path. Examples of the types of comments received include:

- Perceived lack of advancement opportunities for BDOs, including few and infrequent promotion opportunities
- Concerns about the lack of formal distinction between F- and G-Band BDOs
- The desire for a reverse career path, such that BDOs who are not suited to or no longer interested in the BDO job could return to the TSO track

Job Analysis Survey

This category included topics related to the survey itself. The two primary themes resulting from comments in this category were the survey rating scales and the relevance of the survey content. Examples include the following:

- Due to the nature of the job, concerns and questions about the task frequency rating scale, because task frequency is often dependent upon opportunity or situation
- Mixed feedback on the survey content, varying from comments supporting the fact that the survey captured the BDO job well to comments that respondents felt they were being asked to provide information that should already be known by TSA

Summary

This section presented the methods and procedures used to prepare and analyze the job/task analysis survey data, as well as the results of the analysis. An examination of both quantitative and qualitative survey data revealed that managers and non-managers may differ in either their perception of the BDO job, the manner in which they completed the survey, or both. Because of these differences, only non-manager survey participants were included in the data analysis results presented in this section.

The job/task analysis survey provided useful quantitative and qualitative data about the BDO job. Important outcomes resulting from the analysis of these data include:

- Final lists of BDO tasks and KSAOs;
- Work context data for TSA's consideration; and
- Documentation of SME concerns and recommendations regarding topics such as selection, training, and performance management.

Data gathered and analyzed during this step of the job/task analysis process informed the next step of the job/task analysis, the KSAO - task linkage exercise, by providing the critical tasks and KSAOs to include in the exercise. In this next step, SMEs identified the "links" that show which worker requirements (i.e., KSAO) are required to complete specific job tasks.

KSAO – Task Linkage Exercise

The previous chapter described the methodologies and procedures for gathering critical background on the BDO job, finalizing the list of critical work activities (i.e., job tasks) and worker requirements (i.e., KSAOs), and creating and deploying a survey. This section describes how these finalized lists of work activities and worker requirements were used in the linkage exercise workshops to establish the job-relatedness of the KSAOs.

Overview and Purpose

Following the job/task analysis survey, AIR conducted linkage exercise workshops to gather SME input regarding the relationship (i.e., the “link”) between the job tasks and each KSAO identified in the job/task analysis as being critical to the job. Establishing such a link provides support for the “job relatedness” of the KSAOs, as required in the *Uniform Guidelines on Employee Selection Procedures* (EEOC et al., 1978).

During the linkage exercise workshops, BDOs, STSMs, and BDO trainers identified which KSAOs were required to successfully perform each work task (i.e., SMEs “linked” KSAOs to job tasks). Below is a detailed description of the process for planning and administering the workshops, followed by a description of the data analysis and results.

Linkage Exercise Workshop Process

Two linkage exercise workshops took place in Washington, DC during 10 - 13 May 2010. Each workshop was scheduled for 1.5 days and included approximately 20 SMEs. This number of SMEs allowed for a balance between the research needs (i.e., sample size and representativeness) and practical considerations (e.g., travel costs) associated with this job analysis step.

Participants

SME input was critical for completing the KSAO - Task linkage exercise. This type of exercise is a cognitively taxing activity, requiring strong critical thinking skills in addition to extensive job knowledge. Thus, it was especially important to be selective with respect to the participants.

To ensure the receipt of sound data, several criteria for selecting workshop participants were identified, including the recommended total of SMEs, SME job roles, and provisions for a representative sample. A total of 50 SMEs (25 per workshop) was recommended. The exercise required a SME to make 8858 judgments, so the work needed to be split up among SMEs to minimize fatigue and overload. Another recommendation was to include SMEs with a variety of BDO expertise to get different perspectives, including STSMs, National Trainers, and members of the National Standardization Team. Top-performing and qualified BDOs could also be invited on an as-needed basis to “round-out” the list of SMEs. Finally, it was important to obtain a representative sample across geographic location and airport size.

With these recommendations in mind, TSA representatives identified and invited 53 SMEs from across the country. TSA identified several STSMs, National Trainers, National Standardization Team members, and BDOs who had experience as trainers or in other roles that made them ideal for the workshops. For example, STSMs and top performing BDOs from small airports who had informally served as supervisors provided an important operating perspective. Trainers and National Standardization Team members provided an important training perspective. Finally, some SMEs had been involved in the SPOT program from its inception. TSA provided a list of the SMEs and their qualifications for participation in the workshops. The list is presented in Appendix CC.

Demographics

A total of 42 SMEs from 31 different airports participated in the workshops (see Table 27 for a breakdown of the airports they serve by region and size). All but two of the SMEs either currently worked or had worked in the past as a BDO. Additional demographic information is presented in Tables 26 through 30.

One of AIR's main recommendations for whom to invite to the linkage workshops was to focus on SMEs with BDO expertise, including STSMs, National Trainers, and members of the National Standardization Team. This information is presented in Table 26. Most of the workshop participants were H-Band Managers (38.1%) or Expert (G-Band) BDOs (33.3%). In addition, nearly 10% of the sample were National Trainers and 7% were members of the National Standardization Team. Thus, these results show that the workshop participants were experienced SMEs who possess the job knowledge required to provide sound ratings.

Table 26. Job Title

Job Title	Frequency	Percent
Master BDO (F-Band)	7	16.7
Expert BDO (G-Band)	14	33.3
STSM (H-Band)	16	38.1
STSM (I-Band)	5	11.9
Auxiliary Job Title	Frequency	Percent
National Trainer	4	9.5
National Standardization Team Member	3	7.1

The other main selection criterion for the workshop sample was representativeness. As with the survey, the goal was to convene a sample that fairly represented the airports currently operating the SPOT program. As is evident in Table 27, the regions across the country were well represented in the linkage workshop sample. The percentage of SMEs was nearly equal across the regions, and the distribution is almost identical to that in the BDO population. The sample was less well dispersed in terms of airport size. Nonetheless, it is a close representation of the population, with a slight over representation of BDOs from medium airports (population: 31%) and a slight under representation of BDOs from small airports (population: 16%). A complete list of the airports at which SMEs worked is presented in Appendix DD.

Table 27. Category (size) and Region (geographic location) of Airports Represented

Airport Category or Region	Frequency	Percent
Region²⁶ (location)		
East	17	40.5
Central	14	33.3
West	11	26.2
Category (size)		
I (medium)	18	42.9
I (small)	3	7.1
X (large)	21	50.0

Participants ranged in age from 25 to 61 years, with an average of 40 years. As with the survey, this closely resembles the average age of the BDO population (41 years). Most had worked for the TSA for 7.2 years and had served as a BDO for 2.8 years (see Table 28). By design, the linkage workshop sample had a higher tenure than the general population (1.7 years).

Table 28. Mean Age, Job Tenure, and Organization Tenure

Age or Tenure Variable	Mean (years)	SD	Minimum	Maximum
Age	40.0	10.1	25.0	61.0
Tenure with TSA	7.2	2.1	2.8	9.0
Tenure as a BDO	2.8	1.2	0.2	5.5

Like the BDOs who completed the job analysis survey, most BDOs who participated in the workshop are well educated. Specifically, a majority (54.8%) had some college-level education, and 23.3% had either an Associate's or a Bachelor's degree (See Table 29).

Table 29. Highest Level of Education

Education	Frequency	Percent
High School/GED	3	7.1
Some College	23	54.8
Associate's Degree	8	19.0
Bachelor's Degree	6	14.3
Master's Degree	2	4.8
Doctorate or other professional degree	0	0.0
Other	0	0.0

The workshop sample closely resembled the survey sample in terms of gender, ethnicity, and race. The results are presented in Table 30. The majority of the linkage workshop participants

²⁶ Regions were formed using a map of Federalized airports provided by TSA. For data analysis twelve smaller regions were grouped into three larger regions. The "East" region is composed of regions 1, 2, 3, and 4; "Central" is composed of regions 5, 6, 7, 8; and "West" is composed of regions 9, 10, 11, 12.

were male (64%), Non-Hispanic/Latino (90%), and White/Caucasian (69%). The male/female distribution reflects the distribution within the BDO population, which is about 67% male and 33% female.

Table 30. Gender, Ethnicity, and Race

	Frequency	Percent
Gender		
Male	27	64.3
Female	15	35.7
Ethnic Category		
Hispanic or Latino	4	9.5
Not Hispanic or Latino	38	90.5
Racial Category		
American Indian or Alaska Native	1	2.4
Asian	3	7.1
Black or African American	2	4.8
Native Hawaiian or Other Pacific Islander	1	2.4
White	29	69.0
Other	4	9.5
Two or more	2	4.8

Methods and Materials

The methods and materials used for both linkage workshops are described below. First is a description of the materials distributed to the SMEs before the workshops. Next is a description of the materials and methods used during the workshops.

Linkage Exercise Information Packet

Prior to the workshops, TSA distributed information packets to the workshop attendees. These packets provided SMEs with important logistical information and a basic understanding of what would be expected from them during the workshop. These information packets included the following information:

- Information concerning the security sign-in process
- Walking directions to and from the meeting location and the hotels
- Agendas for each day of the workshop
- Map and directions to the meeting location from local airports
- Parking instructions
- Convenient options for lunch

Appendix EE contains a complete information packet for interested readers.

Linkage Exercise Process and Protocol

Recall that each workshop lasted one and one-half days, including breaks and lunches. A copy of the full agenda can be found in Appendix FF. Workshop activities followed a formal protocol, which is included in Appendix GG. The protocol was organized into six activities:

- Introduction and Background
- Sign-in of SMEs
- Description of Key Terms and Linkage Exercise Matrix
- Independent SME Linkage Ratings
- Additional Rating Exercises
- Wrap-Up and Closing

The activities are described below, along with other materials that were referenced or used during the respective activity.

Introduction and Background

To begin, a TSA representative welcomed the SMEs on behalf of TSA, explained the importance of their participation in the linkage activity, and discussed TSA's goals in conducting the job/task analysis for the BDO job. Then, the focus group facilitators provided an overview of the work to be accomplished during the workshop.

Next, the workshop materials were distributed. Each individual packet was labeled with a randomly assigned unique ID number. The ID number allowed workshop facilitators to keep track of each individual's response without compromising confidentiality. The packets included a copy of each of the following:

- An agenda for the workshop
- A job/task analysis definitions and examples handout
- A linkage exercise process handout
- A section of the linkage matrix

With the exception of the agenda, each of these documents is described in further detail below.

Sign-in of SMEs

Next, SMEs completed a Background Information Questionnaire. The questionnaire is included in Appendix HH. The facilitators emphasized that the questionnaire should not include any SME's name in order to protect confidentiality, only the ID number of the SME. The questionnaire requested information about the SME's current work (e.g., job title), past job experiences related to his/her current work (e.g., prior TSA positions held, experience in security work), and other demographic information (e.g., educational attainment, age, race).

Description of Key Terms and Linkage Exercise Matrix

Next, the facilitators distributed and reviewed the handout featuring definitions of key terms (e.g., task, knowledge; refer to Appendix K), a handout describing the linkage exercise process, and the linkage exercise matrix. The process handout is presented in Appendix II. A partial matrix is included in Appendix JJ as a sample of what the SMEs used. As mentioned above, participants received a portion of the full matrix to minimize the burden placed on each individual. At this point, each SME received a matrix that included all KSAOs but only one-third of the tasks. The partial matrices were distributed randomly across the group. As SMEs finished their matrices, they received the next third of the task list. This allowed for counterbalanced distribution of the lists. All of the SMEs completed their assigned one-third of the task list and almost all (37) completed two-thirds or more.²⁷

Independent SME Linkage Ratings

SMEs worked independently to complete their ratings. Job analysts were present to answer questions as they arose. Ratings were provided for each KSAO-Task pairing using a three-point scale: (0) *Not Relevant for Performing a Task*, (1) *Helpful for Performing a Task*, and (2) *Essential for Performing a Task*. SMEs were instructed to begin with the first task and complete ratings for each KSAO before moving on to the next task. That is, it was recommended that SMEs start with the first task, and indicate the extent to which each KSAO is important for performing that task. After working through all of the KSAOs for the first task, they would move to the second task. Many SMEs used this approach, though some found it easier to complete all of the ratings on a single page, working across approximately seven KSAOs and six tasks before moving to the next page.

Additional Rating Exercises

When time allowed, SMEs completed additional rating exercises after they finished the linkage activity. SMEs rated tasks in terms of the likelihood of inadequate performance, consequence of inadequate performance, and emphasis needed in initial training. They rated KSAOs in terms of the emphasis needed in initial training and additional training. The rating scales are listed in Table 31. Instructions and rating scale anchors are presented in Appendix KK.

²⁷ Five SMEs began working through and completed part of an additional (second) matrix. Twenty SMEs completed two-thirds of the list. Four completed two-thirds and part of the last third. Thirteen SMEs provided linkage ratings for the entire list of tasks.

Table 31. Additional Rating Exercises

Likelihood of Inadequate Performance (Tasks)					
NA: Not applicable	1: Always	2: Often	3: Sometimes	4: Rarely	5: Never
Consequence of Inadequate Performance (Tasks)					
NA: Not applicable	1: None	2: Minor	3: Moderate	4: Major	5: Catastrophic
Training Emphasis in Initial Training (Tasks)					
NA: Not applicable	1: No emphasis	2: Minor emphasis	3: Limited emphasis	4: Major emphasis	5: Substantial emphasis
Training Emphasis in Initial Training (KSAOs)					
NA: Not applicable	1: No emphasis	2: Minor emphasis	3: Limited emphasis	4: Major emphasis	5: Substantial emphasis
Training Emphasis in Additional Training (KSAOs)					
NA: Not applicable	1: No emphasis	2: Minor emphasis	3: Limited emphasis	4: Major emphasis	5: Substantial emphasis

These rating scales provided additional information about the tasks and KSAOs. Recall that all of the tasks and KSAOs were deemed important to the BDO job. Nonetheless, it is not practically possible to give equal weight to all of the Tasks and KSAOs within human capital initiatives such as selection and training programs. Use of these scales provides additional data upon which to prioritize the KSAOs covered in selection and training and the Tasks covered in training.

Wrap-Up and Closing

At the conclusion of the focus groups, SMEs were given the opportunity to share any thoughts or comments about the BDO job that had not yet been covered. Individual written comments were provided on notebook paper. In addition, group discussion was held during a question-and-answer session. Representatives from the OSO participated in this session and SMEs were encouraged to ask questions, whether about this project or any part of the job/program.

Data Analysis and Results

Data Preparation

All linkage data were collected in person through paper-and-pencil administration. Although data collection through electronic means has its advantages, this step of the process lent itself better to paper-and-pencil administration for several reasons. First, KSAO-Task linkage activities are inherently complex. In-person administration allowed job analysts to carefully describe the process before the SMEs began their work and to answer questions as they came up throughout the sessions. In addition, job analysts were able to check the matrices for completeness as SMEs handed them in. Second, given that computer use is a small part of the

job for these SMEs, it was assumed that completing hard copies of the matrices would be easier and quicker. This process may very well have allowed for maximization of the SMEs' time, as is evident by the fact that most of the participants provided more data than expected.

Given that the data were collected in paper-and-pencil form, the first step for data preparation was to manually enter the responses. Then ten percent were checked for accuracy by a second job analyst. The error rate was less than 1%. The few errors found were corrected by a third job analyst.

Finally, job analysts also considered patterns of missing data when preparing the data. Missing data occurred when a SME rated only a portion of the tasks (e.g., rated two-thirds of the tasks but did not have time to complete the last third) and when they skipped a rating within the matrix they were assigned. Since job analysts were able to check the completeness of the ratings when SMEs handed in their matrices, very few of the missing data were due to skipped ratings. Regardless of the type of occurrence, cells with missing data were left blank.

Data Analysis

To analyze the results for the KSAO-Task linkage ratings, frequencies, means, and standard deviations were computed. For each KSAO-Task pairing, there was a corresponding number and percent of SMEs who rated the KSAO as (0) *Not Relevant*, (1) *Helpful*, and (2) *Essential*. There was also a mean rating across the SMEs (and a standard deviation) for each pairing. First, however, interrater agreement (r_{wg}) was computed in order to evaluate the extent to which BDOs agreed on their ratings.

Interrater Agreement Results

Interrater agreement (r_{wg}) ranged from 0.0 to 1.00. The critical value for these judgments was .20 (Dunlap et al., 2003).²⁸ Agreement for 42% of the 8858 judgments was greater than would be expected due to chance. It should be noted that there could be legitimate reasons for differences between raters. Recall that a representative sample with varied experience was chosen specifically to provide an array of perspectives. It may be that these different perspectives translated into different ratings because the SMEs were thinking of the job in somewhat different, but completely legitimate, ways.

An examination of the KSAOs for which there was low agreement supports this assumption. For example, raters did not agree about how to relate the tasks to the following supervisory KSAOs:

- *Skill in managing and resolving conflicts and disagreements among team members in a constructive manner*
- *Skill in inspiring and fostering team commitment, spirit, pride, and trust*
- *Skill in motivating team members to accomplish group goals*

²⁸ The critical value was different for these judgments than for the survey ratings because of the differences in response options and sample size.

In the field, some BDOs use these skills on a daily basis; whereas others do not. Information gathered from other steps in the job/task analysis suggested that SMEs do not agree on the extent to which BDOs use and/or should be using these skills. It is likely this disagreement is reflected in the linkage ratings.

Other KSAOs generated similar disagreement throughout the job/task analysis and through these interrater agreement statistics. Of particular interest, SMEs disagreed about the extent to which tasks related to *Knowledge of Additional Behavior Detection Training (ABDT) or other behavior detection techniques*.

Again, this KSAO does not apply to all BDOs. Only some have had the training. Even those BDOs disagree about its usefulness. Some feel that it is a great tool for illuminating important casual conversation topics; whereas others feel it is not helpful without associated point values.

Despite the fact that the data could reflect interesting, legitimate differences, they do not change the results of the linkage workshop. As described in detail below, job analysts identified KSAOs that linked to the BDO job. They used all of the available data. To explore the implications of these interrater agreement findings, though, job analysts completed the same analyses after excluding the data for which agreement was not statistically significant. A comparison of the results is presented in Appendix LL. When all of the data were included, three KSAOs failed to link back to at least one task.²⁹ With the restricted dataset, only one additional KSAO failed to link: *Knowledge of Identity Verification Call Center (IVCC) procedures*. The comparable results from the two datasets provide further support that the low interrater agreement does not necessarily mean that the ratings are invalid or of low quality.

Linkage Rating Exercise Results

Since the linkage data results span over 500 pages, only a portion are presented in Appendix MM as a sample.³⁰ Two sets of decision rules were applied to the results. First, selection KSAOs (i.e., those needed prior to hire) and training KSAOs (i.e., those needed after either the initial training or after starting the BDO job) were evaluated in terms of the number of tasks to which they linked. Second, the selection KSAOs were evaluated in an effort to prioritize which could be used in hiring practices.

Establishing KSAO - Task Links

The decision rules for determining whether a KSAO linked to a task statement differed slightly for selection and training KSAOs. In either case, though, a KSAO-Task pairing was considered "linked" if it met one of the two criteria presented in Table 32.

²⁹ Ability to maintain physical agility that would allow for squatting and bending. Ability to lift and carry baggage weighing up to 40 pounds. Ability to lift and carry baggage weighing up to 70 pounds.

³⁰ The complete linkage data results are available upon request.

Table 32. Decision Rules for Establishing Linkages

Type of KSAO	Primary	Secondary
Selection	Mean SME rating > 1.5	Essential rating from 75% of SMEs
Training	Mean SME rating > 1.5	Essential or Important rating from 75% of SMEs

For selection KSAOs, the KSAO “linked” to a task if the average rating across SMEs was 1.5 or higher. If the KSAO-Task pairing did not yield a mean of 1.5 or higher but received an Essential rating from at least 75% of the SMEs, the KSAO was still considered linked to the Task. The secondary criterion was included because it would have been possible to have a mean of less than 1.5 but still have the majority of people rating the KSAO-Task link as Essential.³¹ An example link using these criteria follows. *Skill in clarifying information linked to Conduct casual conversation with the referred individual (b)(3):49 U.S.C. § 114(r) to obtain a resolution.* The average linkage rating was 1.94, and the KSAO was rated as being Essential by 94.3% of the SMEs.

For training KSAOs, the KSAO “linked” to a task if the average rating across SMEs was 1.5 or higher. If the KSAO-Task pairing did not yield a mean of 1.5 or higher but received an Essential or Important rating from at least 75% of the SMEs, the KSAO was still considered linked to the Task. For the training KSAOs, the secondary criterion was used. Two example links using these criteria follow. First, *Skill in using job-specific software and applications (e.g., PARIS, SPOT database, on-line training programs) linked to Enter information correctly and accurately into Performance and Results Information System (PARIS), with a mean rating of 1.94. The same KSAO linked to Provide completed documents and report information to appropriate BDO team members and/or individual responsible for processing reports with a mean rating of 1.41 and 90.6% of the SMEs indicated the KSAO is either Essential (50%) or Important (40.6%) for performance of the task.*

Using these decision rules, three selection KSAOs did not link to any Tasks:

- *Ability to maintain physical agility that would allow for squatting and bending,*
- *Ability to left and carry baggage weighing up to 40 pounds, and*
- *Ability to lift and carry baggage weighing up to 70 pounds.*

All of the training KSAOs linked to at least one Task. The KSAO-Task pairings that warranted a link are summarized in Appendices NN and OO (organized by KSAOs and by Tasks, respectively).

³¹ In practice, none of the KSAOs required implementation of the secondary criterion (i.e., all KSAOs-Task pairings with a mean rating less than 1.5 also had fewer than 75% of the sample rating the pairing as Essential).

Prioritizing KSAOs

KSAOs that have been identified as relevant to the job through the KSAO-Task linkage exercise can be considered for inclusion into the BDO selection process. The next step was to prioritize the KSAOs, using the criteria presented in Table 33.

Table 33. Decision Rules for Prioritizing Linkages

Type of KSAO	Primary	Secondary	Tertiary
Selection	Needed at time of hire	Important to the job	Links to at least 25% of the tasks
Training	Can be acquired after hire	Important to the job	

Hiring practices should focus on KSAOs that (1) an employee needs at the time of hire, (2) relate to the most important aspects of the job, and (3) relate to the greatest proportion of the job. Thus, for this exercise, it was of primary importance to establish when the KSAO was required (i.e., at the time of hire or afterward). Fifty-seven of the remaining KSAOs were deemed needed at time of hire through survey results. A secondary consideration was to ensure that the KSAO was important to the job. All of the KSAOs were rated as important. Finally, for a KSAO to be considered relevant for selection purposes it had to link to at least 25% of the tasks. This would ensure that selection tools developed based on these KSAOs would represent the entirety of the tasks performed by BDOs. Not all of the KSAOs related back to a large portion of the job, though. Seventeen selection KSAOs linked to fewer than 22 (25%) of the Tasks. It would be reasonable, then, to focus on the remaining 40 KSAOs when conceptualizing a hiring process for the BDOs.³²

Written Comments from Linkage Workshop

Written comments from the linkage workshop participants were analyzed and summarized by two job analysts. These comments were categorized into three main categories: Selection, Training, Other. Common themes in the recommendations include suggested revisions to the interview protocol used in the selection process, expressed interest in refresher courses, and comments regarding SPOT operations.

Selection

The following recommendations include thoughts about how to improve the current hiring system, such as changing the content, process, and criteria.

- Improve current hiring process
 - Hire from the general labor pool rather than just from within TSA.
 - Include additional measures (e.g., physical fitness test, writing skills evaluation).

³² The linkage data will be further analyzed during the next phase of this project. Recommendations for the hiring process will be based on the results. The results and the subsequent development of a selection process will be described as part of another deliverable.

- Expand the process. Include an application/resume review, peer review panel interview, and a work sample test. The work sample test could include video observation exercise and responses to scenarios.
- Update the current interview.
- Combine the “best qualified” list with the “qualified” list.
- Make hiring criteria more stringent.
- Implement a mandatory probationary period.

Training

The following recommendations include suggestions for how to improve BDO training, such as changing the content and criteria.

- Lengthen initial training (to at least 2 weeks); Content should include initial baseline, behavior resolution, interactions with/elevating to LEO, report writing/documentation, and initial observation of behaviors.
- Expand training to include more frequent (and regular) training refreshers.
- Implement an On-the-Job Training (OJT) program (at least 2 weeks long) so that trainers have more time to observe and make better assessment of candidates.
- Create an intensive training program for managers, including a review of some initial BDO training subjects. Managers should be fully trained with OJT duties and responsibilities.
- Create a main hub/training location to reduce costs.
- Implement a process for removing candidates who are not successful in training.

Other

In this final section, other relevant recommendations and related information are presented, including comments concerning the BDO career progression, the Standardization Team, and program modification.

- Increase duties for G-Band BDOs or make the F-Band and G-Band pay equal.
- Use the National Standardization Team to eliminate inconsistencies within the program and to train managers (e.g., send managers out with National Standardization Team for two airport visits).
- Assist BDOs with conflicting priorities (e.g., Playbook) by changing the metric to meet program needs or increasing BDO staff/hours.
- Improve communication to the field.

Discussion of Findings

This section described the collection, preparation, and analysis of the KSAO-Task linkage data, as well as the results of the analysis. Out of the 8858 KSAO-Task pairings, 40% (3544) were deemed related. That is, 40% of the pairings met the decision rule criteria and were labeled

“links.” In addition, 100 of 103 KSAOs linked to at least one critical BDO Task. Thus, the majority of KSAOs could be considered job-related.

Several KSAOs link to a substantial amount of the job and might be good candidates for consideration in a hiring system. Of the 57 selection KSAOs for which job-relatedness was firmly established, 40 linked to more than 25% of the tasks. These offer a starting point for conceptualizing a selection system. Of course, additional considerations will be necessary to winnow down this list for practical reasons.

The findings from the linkage workshop may be used to inform the test specification process. Specifically, the information collected on KSAOs may be used to choose and develop materials for BDO selection measures. Job analysts will apply knowledge of the behavioral sciences, personnel selection, and training to identify the optimal group of KSAOs to use in the hiring process.

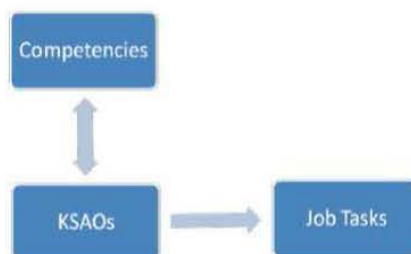
Building the test specifications that measure the KSAOs collected will require a thorough literature review to explore both existing hiring tools and potential new measures. For both existing and new measures, AIR will evaluate the feasibility of each using five separate criteria: (1) appropriateness of the test for the intended purpose, (2) ease of implementation, (3) psychometric properties of existing measures, (4) susceptibility to faking, and (5) practical considerations such as development costs. Results of the evaluation will lead to decisions about the best measures to include in the hiring process, recommendations for a proposed hiring process, and development of appropriate new tools.

KSAO - COMPETENCY CROSSWALK

Overview and Purpose

The final step in the job analysis process was to create a crosswalk (i.e., “link”) between the critical KSAOs and TSA’s Core and Technical Competency Catalogs. This step will provide important information regarding the job-relatedness of the TSA competencies by virtue of the relationship between the competencies, the KSAOs, and the job tasks (see Exhibit 2). Since TSA is a competency-based organization, this linkage will help ensure that the job analytic data can be maximally useful in supporting the organization’s human capital initiatives.

Exhibit 2. Relation between Competencies, KSAOs, and Job Tasks



To develop an understanding of these relationships, AIR first developed preliminary crosswalk linkages. Next, these linkages were finalized in working group meetings with the OHC, the OSO, and the Naval Research Laboratory (NRL). The working group also proposed slight revisions to several of TSA’s competencies, and proposed several additional technical competencies that TSA may consider adding to the existing competency catalog. Each of these steps is discussed in greater detail below.

Step I: Develop Preliminary Crosswalk Linkages

Two AIR job analysts followed a systematic process for developing the preliminary crosswalk linkages. The methods and results of this process are described below.

Methodology

As the first step in the process, two AIR job analysts developed preliminary linkages between the critical KSAOs and TSA’s Core and Technical Competency Catalogs. To develop these preliminary linkages, each analyst worked independently to determine the extent to which each KSAO and competency linked using a KSAO-Competency Matrix (see Appendix PP for a sample). This matrix listed the 100 critical KSAOs from the job analysis vertically and the 63 Core and Technical competencies (and their definitions) horizontally. Using this matrix, each

analyst made individual judgments about the extent to which each KSAO linked to each competency, considering both the competency's title and definition.

Analysts made these determinations using a three-point rating scale. The rating scale, listed below, was used in order to capture as much information about the KSAO-competency relationship as possible. Scale definitions included example scenarios to help the analysts make determinations about the appropriate rating to assign.

- 2 = Competency Strongly Links to KSAO. This KSAO is the same as, or very similar to, the competency; there is a large degree of overlap between this competency and this KSAO.
- 1 = Competency Weakly Links to KSAO. This KSAO is similar to this competency, but is not the same; there is some degree of overlap between this competency and this KSAO.
- 0 = Competency is not related to KSAO.

After making individual ratings, the analysts met to review their findings. Through discussion, they reached consensus agreement for each KSAO-competency pairing. More specifically, the analysts reached consensus on two types of decisions. First, analysts reached consensus on whether a relationship (i.e., "link") existed between a KSAO and a competency. Next, analysts resolved any differences regarding the extent to which each KSAO-competency pairing linked (i.e., "strongly" or "weakly"). The interrater agreement results for this exercise are discussed below, followed by the results of the preliminary linkages.

Results

Interrater Agreement Results

To determine interrater agreement, each judgment (i.e., cell) was evaluated and assigned a weight. When raters agreed, the cell was assigned a weight of zero (0). When the raters agreed that the KSAO and competency linked, but they disagreed about the extent of the linkage (i.e., one rater felt they linked weakly, but the other felt they linked strongly), the cell was assigned a weight of half a point (.5). When the raters disagreed completely (i.e., one rater felt they linked weakly or strongly, but the other rater did not link the KSAO and competency), the cell was assigned one point (1). In this way, disagreements about whether a relationship existed between a KSAO and a competency were given a higher weighting (i.e., a value of 1) than disagreements about the degree of relatedness (i.e., a value of .5). Once weighting was established, the cell values were summed and labeled Weighted Disagreement Total (see Table 32). Then, the Weighted Disagreement Total was divided by the total number of judgments (6300) to obtain the Percent Disagreement. Percent Agreement was calculated by subtracting the Percent Disagreement from 100%. This process for calculating overall agreement was employed for each competency as well. For example, the cell values for "Technical Credibility" were summed and divided by the number of judgments (100). A range of Percent Agreement across Competencies is also presented in Table 34.

Across all linkages, agreement between the analysts was very high (94.8%). Interrater agreement per competency was also good, ranging from 57% (e.g., *Application of Screening*

Standards) to 100% (e.g., *Flexibility, Arithmetic and Mathematical Reasoning*). This range of agreement can be considered especially high given the complexities of the rating exercise. For example, KSAOs and competencies are typically written at different levels of specificity. That is, KSAOs are written as discrete statements of worker capabilities, whereas competencies often contain a number of elements (e.g., varying degrees of knowledge and skills). Due to this fundamental difference, it was often challenging to determine whether to label linkages as “strong” or “weak.” In addition, the competency catalog includes competencies at both tactical and strategic levels. Although a few KSAOs address supervisory-related work, most of the BDO job is at a tactical level. On the surface, the KSAOs may link to the strategic competencies but they become less relevant within the context of the job. Thus, it was necessary to consider whether the KSAO-Competency links were general judgments about the KSAOs and competencies as stand-alone entities or specific judgments about the KSAOs and competencies as they related to the BDO job.

Table 34. Interrater Agreement of Preliminary Crosswalk Linkages

Summary Characteristic	Result
Total # of KSAOs	100
Total # of Competencies	63
Total # of Judgments Overall	6300
Total # of Disagreements - Linkage Relationship (link vs. no link)	313
Total # of Disagreements for Degree of Linkage	29
Weighted Disagreement Total	327.5
Percentage Disagreement	5.2%
Percentage Agreement	94.8%
Range of Agreement per Competency	57% - 100%

Preliminary Linkage Results

In total, the preliminary review yielded 94 “strong” KSAO-competency linkages and 155 “weak” linkages. These linkages were summarized in a Microsoft Excel Workbook by KSAO, along with important data regarding each KSAO from the job analysis survey and linkage exercise workshops. The “strong” and “weak” competency linkages were listed in fields next to each KSAO. Relevant information about the linkage decisions were provided in a Comments field in the linkage Excel Workbook. The full list of preliminary linkages can be found in Appendix QQ.

Step II: Finalize Crosswalk Linkages

Methodology

Next, the KSAO-competency crosswalk linkages were finalized in a two-day working group meeting. The methodology and results of these meetings are described below.

Participants

The working group meetings were held consecutively on 23 and 24 June 2010. Meeting participants included the job analysts who developed the preliminary linkages, a representative from NRL, representatives from TSA's OHC who have knowledge of the Core and Technical Competency Catalogs, and representatives from TSA's OSO who have in-depth knowledge and understanding of the BDO job (see Table 35).

Table 35. Crosswalk Linkage Meeting Participants

Participants' Organization	23 June 2010 Meeting Participants	24 June 2010 Meeting Participants
AIR	Three (3) Industrial - Organizational Psychologists	Three (3) Industrial - Organizational Psychologists
NRL	Head, Adversarial Modeling and Exploitation Office	N/A
TSA OHC	Two (2) Personnel Psychologists	Two (2) Personnel Psychologists
TSA OSO	Training Manager, SPOT Program	Training Manager, SPOT Program
	Project Manager, SPOT Program	

Reference Materials

To support the crosswalk linkage meetings, attendees received a set of reference materials, including a copy of each of the following:

- Briefing slides summarizing the job analysis process to date;
- An agenda;
- The TSA Core and Technical Competency Catalogs (see Appendix N³³);
- The preliminary linkage results from AIR's review (see earlier Appendix QQ);
- A reference key for the preliminary linkage results (Appendix RR);
- AIR's working definitions of KSAOs and competencies; and
- Summary data regarding the TSA Core and Technical Competencies collected during focus groups on various site visits (see earlier Appendix R).

Process

At the working group meetings, AIR representatives provided attendees with an update on the status of the job analysis and reviewed the process followed for developing the preliminary linkages. Before beginning, the group discussed whether to continue using the three-point rating scale used to make the preliminary linkages or to move to dichotomous decisions of "link" or "no link." Ultimately, the group decided to continue using a three point scale to identify "strong" and "weak" competencies as OHC representatives determined the information was

³³ Note that for the purposes of the crosswalk workshop, the TSA core and technical competencies were presented in a different format than Appendix N provides. For the crosswalk, Core and Technical competencies were combined and presented in alphabetical order.

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useful to retain. Next, the group spent time discussing how to best define the scale. After working through some initial linkages, the group decided to use the same scale definitions that were used to make the preliminary linkages. This scale is listed below.

- 2 = Competency Strongly Links to KSAO. This KSAO is the same as, or very similar to, the competency; there is a large degree of overlap between this competency and this KSAO.
- 1 = Competency Weakly Links to KSAO. This KSAO is similar to this competency, but is not the same; there is some degree of overlap between this competency and this KSAO.
- 0 = Competency and KSAO are unrelated.

Using this rating scale, the group worked to determine final linkages in a systematic manner. Each KSAO was read aloud, along with each of the competencies and definitions that strongly and/or weakly linked to the KSAO. When necessary, AIR representatives provided background information on the KSAOs and their importance to the BDO job. Conversely, representatives from OHC provided key information about the purpose and/or background of individual competencies. As an example, OHC explained that TSA's Technical Competency, *Technical Credibility*, was created to represent any job-specific specialized expertise an individual must possess. Following group discussion, final determinations were made about the relationship and degree of linkage for each KSAO. Occasionally, meeting group attendees suggested additional competencies to consider as potential linkages that had not been included in the preliminary linkages. Throughout the meeting, a projector was used to make it easy for meeting participants to view final linkage decisions.

Results

The finalized linkages resulted in 160 "strong" KSAO-competency linkages and 129 "weak" linkages. Further, these linkages resulted in "strong" linkages for almost all critical KSAOs, many of which linked back to TSA's *Technical Credibility* competency. Additionally, final linkages resulted in suggested additions and/or revisions to the current TSA Core and Technical Competency Catalogs. These changes and additions were noted in a Comments field in the linkage Excel Workbook. The full list of finalized linkages can be found in Appendices SS (KSAO view) and TT (Competency view). The proposed revisions and additions are discussed in the following section.

Proposed Revisions to TSA's Competency Catalog

In final step of the process, AIR proposed additions and revisions to TSA's Competency Catalog. The purpose and process of each step are described below.

Purpose

Additional Competencies

Additional TSA competencies were proposed when critical KSAO statements did not have any "strong" links to the current TSA Core and Technical Competencies or it was determined that a

65

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more specific linkage than *Technical Credibility* would be useful. OHC representatives noted that the addition of the new competencies would be applicable to many TSA jobs, not just the BDO job. In total, five new competencies were proposed (see Table 36). A more detailed table of the additional competencies, describing the purpose for each addition, can be found in Appendix UU.

Table 36. Proposed Additions to Current TSA Core and Technical Competencies

Competency Title	Definition
Memorization	Remembers factual information, including numbers and procedures; recalls information verbatim, when necessary.
Vigilance	Maintains attention, alertness, concentration, and/or focus over prolonged periods of time; maintains a high level of attention to detail over prolonged periods of time.
Discretion	Recognizes situations that require circumspect behavior; carries out duties in a covert manner, when necessary.
Extraversion	Is comfortable with social interaction; feels at ease approaching others to obtain information; acts assertively when necessary.
Auditory Observation	Takes in and recalls incoming auditory sensory information and uses it to make predictions, comparisons, and/or evaluations; recognizes differences or similarities in sound; discerns between relevant cues or information and irrelevant or distracting information.
Olfactory Observation	Takes in and recalls incoming olfactory sensory information and uses it to make predictions, comparisons, and/or evaluations; recognizes differences or similarities in smell; discerns between relevant cues or information and irrelevant or distracting information.

Revised Competencies

Proposed revisions to current TSA competencies resulted from group discussions that revealed improvements could be made to the catalog. Again, OHC noted that specific changes would improve the catalog for a variety of TSA jobs; including but not limited to, the BDO job. For example, group members proposed altering the current *Application of Screening Standard Operating Procedures* competency to a more generic *Application of Position-Specific SOP* competency. In total, six revisions were suggested (see Table 37). A more detailed table of the proposed revisions, including the purpose of each, can be found in Appendix VV.

Table 37. Proposed Changes to Current TSA Core and Technical Competencies

Current TSA Competency/Definition	Suggested Competency/Definition
Application of Screening Standard Operating Procedures: Applies knowledge of permitted and prohibited items and current Standardized Operating Procedures (SOP) to include security breach, current performance protocols (e.g., hand wand techniques and special search methods), information on travel documents and procedures for reporting equipment failure.	Application of Position-Specific SOP: Retains and implements knowledge of all position-specific Standardized Operating Procedures (SOP) to applicable aspects of current position.
Command Presence: Demonstrates confidence and credibility in presence, demeanor, and conduct in performance of duties within the work environment.	Command Presence: Demonstrates confidence, credibility, and professionalism in presence, demeanor, and conduct in performance of duties within the work environment.
Diversity Awareness: Recognizes variations among cultures and treats all people with respect; establishes and maintains effective working relationships with people from different backgrounds; provides a supportive work environment for the multicultural workforce by showing sensitivity to individual differences and treating others fairly; values and encourages varied perspectives, unique skills, and talents.	Diversity Awareness: Recognizes variations among cultures and treats all people with respect; establishes and maintains effective working relationships with people from different backgrounds; shows sensitivity to individual differences and treating others fairly; values and encourages varied perspectives, unique skills, and talents.
Influencing/Negotiating: Persuades others; builds consensus through give and take; gains cooperation from others to obtain information and accomplish goals.	Influencing: Persuades others Negotiating: Builds consensus through give and take; gains cooperation from others to obtain information and accomplish goals
Self Management: Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior.	Self Management: Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve
Transportation Security Proficiency: Understands the range of security issues, threats, and challenges facing TSA; the roles of other federal, state, and local government agencies in addressing them; and the frameworks for effectively analyzing and addressing them.	Transportation Security Proficiency: Applies knowledge of the range of security issues, threats, and challenges facing TSA; the roles of other federal, state, and local government agencies in addressing them; and the frameworks for effectively analyzing and addressing them.

Process and Next Steps

Following the working group meeting, AIR representatives worked to draft the revisions and additions to the TSA competencies. Once drafted, the proposed competencies were reviewed by NRL and TSA and sent to OHC. OHC representatives plan to present the additions and changes to their Competency Working Assessment Group (CWAG) for their consideration.

Summary

This section of the report detailed the final step in the job analysis process; the KSAO – Competency Crosswalk. To reiterate, the purpose of this step was to ensure that TSA is able to fully leverage the job analytic data collected. To accomplish this task, AIR representatives developed a set of preliminary linkages that were then finalized during working group meetings. Both the AIR representatives and members of the working group meeting determined it was beneficial to use a 3 point rating scale to determine these linkages (i.e., identify “strong” links, “weak” links, and “no” links). Finalized crosswalk linkages resulted in “strong linkages” for almost all critical KSAOs, many of which linked back to TSA’s *Technical Credibility* competency. Six new competency titles and definitions were developed to cover important KSAOs that did not “strongly link” back to current competencies. Further, proposed changes were drafted to a few TSA competencies that could improve the catalog for a variety of TSA jobs, including but not limited to, the BDO job. The proposed alterations will ultimately be presented to OHC’s competency working group, CWAG, for their consideration.

SUMMARY AND NEXT STEPS

Review of Completed Work

This report describes the details of the job/task analysis update for the BDO job. To summarize, the job/task analysis update was conducted in several steps that each provided important information about the BDO job. These steps included the following:

- Conducted background material review to develop initial BDO task, KSAO, and tool/equipment lists;
- Conducted site visits to provide input for the development of the job/task analysis survey;
- Developed and implemented a job/task analysis survey to finalize the BDO task list and to identify the most critical BDO tasks and KSAOs for the linkage exercise workshops;
- Conducted a task and KSAO linkage rating exercise to establish the job relatedness of KSAOs; and
- Developed a KSAO – competency crosswalk to link KSAOs to TSA’s Core and Technical Competencies.

As discussed throughout this reports, the completion of the above steps provided a review of the BDO job as it is currently performed, as well as an examination of the job for differences in work and worker requirements across different groups, such as those working at different sized airports.

Important Products

Completion of the job/task analysis update for the BDO job, as outlined above, resulted in the development of several important products. These products include:

- Lists of current job tasks, KSAOs, and tools that were previously not documented for the BDO job.
- Documentation of how KSAOs link to job tasks and when KSAOs are required for the job (e.g., before hire, after hire); this information may be used to identify and/or develop materials for BDO selection measures, as well as identify the knowledge and skills that could be addressed through training.
- A crosswalk of KSAOs to TSA competencies; this document is important as it provides a link between the conducted job/task analysis and TSA’s competency-based organizational structure.
- The proposed addition of six competencies to the TSA competency catalogs; these additions ensure that the KSAOs required for successful performance as a BDO are captured within the TSA competency catalog.

Key Findings

Through the various methods of data collection outlined above and highlighted in this report (e.g., open-response and closed-response survey items, focus groups, interviews, workshops), there were a number of important findings regarding the BDO job. Key findings, grouped by topic, are highlighted below.

Task and KSAO Results

BDO survey respondents indicated that despite the variability in frequency of particular tasks, most could be categorized as very high in importance. These ratings did not differ meaningfully across airports, indicating that the BDO job is relatively consistent regardless of airport size or location. Tasks performed by BDOs were also commonly rated as not being difficult to learn, although differences in this rating were observed. These differences in task difficulty may have driven the desire expressed by some BDOs in the open-response section of the survey for training in topics (b)(3):49 U.S.C. § 114(r). Likewise, BDOs highlighted a need for further training (b)(3):49 U.S.C. § 114(r). Comments provided by KSAO-task linkage workshop participants also supported the notion of additional training related to particular topics (e.g., interactions with LEOs, initial baseline behavior resolution).

Along with task ratings, critical information was also provided by SMEs concerning the requisite KSAOs for the BDO job. First, a large portion of the KSAOs were rated by BDOs as important. Likewise, these KSAOs were differentiated as being either relevant for selection or training. This latter finding is particularly informative for future initiatives related to BDO selection process and tools. A final consideration regarding the KSAOs identified during the job/task analysis update is their relationship to TSA's existing competency model. Based on the results of the KSAO – competency workshop, a majority of the KSAOs were found to have some link (ranging from “weak” to “strong”) to the existing competencies. These results suggest a significant overlap between two different analyses of the BDO job.

Work Context Results

Qualitative data resulting from the site visits and quantitative data resulting from the job/task analysis survey (i.e., the open-response section and work context items) indicated that BDOs believe their job features a significant amount of both physical and cognitive fatigue. Physical fatigue may primarily be attributed to extended durations of standing and walking. During site visits, SMEs noted the importance of good shoes, as well as shared stories about physical issues (e.g., knee problems requiring physical therapy), due to the walking and standing required on the job. Cognitive fatigue, on the other hand, is likely associated with the need to perform repetitive mental activities while maintaining a high level of accuracy. Finally, BDOs indicated that teamwork is a major component of successful performance for their job. This point was also highlighted in the open-response section of the job/task analysis survey, in which BDOs recommended the inclusion of the KSAOs related to the ability to work in a team and social skills in future selection processes.

Programmatic Challenges

In addition to the numerical ratings, comments provided by BDO personnel in the job/task analysis survey and during the linkage workshops may inform future decisions regarding the BDO job. For example, one trend that emerged from this job/task analysis concerned career progression opportunities for BDOs. Some individuals expressed concern regarding the lack of career advancement opportunities. Other respondents indicated a desire to have the opportunity to return to the TSO track if they found themselves lacking interest or were not well-suited for the BDO job. Additional responses illustrated a need to formally differentiate the pay-scale and duties of the F- and G-Band BDOs. Finally, BDOs offered suggestions for improving the hiring process (e.g., including additional measures, hiring from a general labor pool, revising the current interview process).

Areas for Further Consideration

Throughout the BDO job/task analysis process, data were gathered and analyzed to ultimately support decisions regarding selection and/or training initiatives. Within these data, areas for possible follow-up or further consideration with regards to selection, training, or the BDO job in general emerged. These included topics such as effects of fatigue on BDO job performance; potential differences between F- and G-Band BDOs; the effect of participation in other security operations (e.g., Playbook) on the BDO workforce; and considerations related to the conduct of the casual conversation. Data related to the latter – the conduct of the casual conversation – are highlighted in a case study (see page CS-1 of this report) along with a discussion of how these data may be used to further BDO selection and training. Note that the case study does not reflect a detailed data analysis related to this aspect of the job, but rather highlights one example of how data may be applied to inform potential next steps for selection and/or training.

Next Steps

The job/task analytic data gathered for the BDO job establishes the foundation for selection and training initiatives. For the current effort, the next phase of research will involve the examination of ways to improve the current selection system. This process begins with the identification of test specifications. This process includes the following steps, as described below.

- *Select KSAOs for inclusion in the selection system.* This step is partially completed, as it involves the identification of KSAOs that are required for important job tasks and required upon entry into the BDO job.
- *Conduct a literature review.* This step involves a review of academic literature about existing selection measures that could be used to assess these important KSAOs.
- *Evaluate feasibility of measures.* This step involves a review of identified selection measures to determine feasibility in terms of the appropriateness of test for given purpose, the ease of implementation, the psychometric characteristics of existing measures, susceptibility to faking, and practical considerations (e.g., development costs).
- *Construct final test specifications.* This final step involves the preparation of a formal test specification document to include, among other information, the selected

measurement method(s), proposed item development procedures, proposed scoring procedures, and test administration method(s).

Conclusion

The job/task analysis update described in this report provided up-to-date information about the BDO job. Specifically, data were collected and analyzed about the work (i.e., tasks) and worker requirements (i.e., KSAOs) required for the BDO job, including known changes and expansion to the job in recent years (e.g., walking the line, working in pairs). In addition, the job/task analysis provided information about differences across airports, programmatic challenges, and the component of the job related to the conduct of the casual conversation. The documentation of accurate and up-to-date information about the job ensures that HRM activities (e.g., selection, training) are informed by a current and accurate understanding of the job and what is required for successful performance on the job.

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GLOSSARY OF KEY TERMS AND ACRONYMS

The following lists provide brief descriptions of key terms and acronyms that are included within this technical report.

Additional Behavior Detection Training (ABDT): Training to recognize micro-facial expressions.

Behavior Detection Officer (BDO): Any 1801 or 1802 series employee who is certified in and authorized to conduct SPOT.

Casual Conversation: Non-custodial, non-threatening discussion.

Expert BDO: A BDO who has met the requirements to perform at the Transportation Security Administration's (TSA's) Pay Band G level. *(Note that in some airports, this position includes supervisory responsibilities.)*

Master BDO: A BDO who has met the requirements to perform at TSA's Pay B and F level.

National Standardization Team: A group of SPOT National Training Team instructors and other individuals appointed by the SPOT Program Office to provide program evaluations and assistance to airports in the management of the local SPOT program.

National Trainer: A member of the SPOT National Training Team, which is composed of a group of BDOs who are certified as SPOT Instructors; these individuals commit to being available for national deployment to meet SPOT Program Training needs.

PASS: Performance Accountability and Standards System.

Playbook: A random selection of security measures to be used throughout the airport.

SME: Subject Matter Expert.

SPOT: Screening Passengers by Observation Technique.

SPOT Assist Card: A set of cards issued to BDOs for use in referencing SPOT behaviors and point values.

SPOT Transportation Security Manager (STSM): The Transportation Security Manager who is responsible for the local operations of the SPOT program and supervision of the BDOs.

TSO: Transportation Security Officer.

Visible Intermodal Prevention and Response (VIPR): Screening operations to enhance security for all modes of transportation.

JOB/TASK ANALYSIS CASE STUDY: CASUAL CONVERSATION

Introduction

Throughout the BDO job/task analysis process, data were gathered and analyzed to ultimately support decisions regarding selection and/or training initiatives. Within these data, areas for possible follow-up or further consideration with regards to selection, training, or the BDO job in general emerged. These included topics such as effects of fatigue on BDO job performance; potential differences between F- and G-Band BDOs; the effect of participation in other security operations (e.g., Playbook) on the BDO workforce; and considerations related to the conduct of the casual conversation. In this case study, data related to the latter – the conduct of the casual conversation – are highlighted, and a discussion of how these data may be used to further BDO selection and training is presented. Note that this case study does not reflect a detailed data analysis related to this aspect of the job, but rather highlights data gathered on this topic and how it may be applied to inform potential next steps for selection and/or training.

Background

Early in the BDO job/task analysis process, qualitative data resulting from interviews, focus groups, and job observations, indicated the importance of the casual conversation. Specifically, SMEs noted the skills required for this aspect of the job, its importance to the success of the program, and their own recommendations for considering this aspect of the job in BDO selection and training. For example, several SMEs noted their desire to include a focus on communication and conflict resolution skills in the job interview. Several SMEs also indicated their desire for a greater focus on the casual conversation in initial BDO training, opportunities for refresher training, and additional opportunities to practice the casual conversation.

Similarly, quantitative data gathered from the BDO job/task analysis survey provided an overview of BDO job task and KSAO importance. In addition to overall analyses, these data were reviewed in terms of specific job components, such as the casual conversation. Table 38 provides a list of the task and KSAOs related to this aspect of the BDO job. An analysis of these tasks and KSAOs revealed a high level of importance for this aspect of the job (i.e., mean task importance ranged from 4.39 – 4.93, mean KSAO importance ranged from 4.18 – 4.86). However, the frequency of performing tasks related to the casual conversation were much lower (i.e., mean task frequency ranged from 1.54 – 3.00). Therefore, this aspect of the job presents challenges to selection and training. The KSAOs required for the casual conversation are important and many resulted in high “Required before BDO training” ratings; however, the tasks may be performed infrequently, necessitating emphasis in training – and retraining – initiatives.

CS-1

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Table 38. Tasks and KSAOs Related to the Conduct of the Casual Conversation³⁴

Task or KSAO Related to the Casual Conversation	
Task # ³⁵	Task Statement
31	Observe the individual for behaviors that may indicate signs of deception, suicide bomber indicators, or surveillance activity during the casual conversation.
32	Conduct casual conversation with the referred individual (b)(3):49 U.S.C. § 114(r) to obtain a resolution.
35	Add points accumulated during the casual conversation to the individual's score.
36	Confirm and concur with BDO partner information and behaviors assessed during the casual conversation.
40	Determine whether SPOT-related behaviors have been resolved based on the completion of the SPOT Referral Screening and all associated alarm resolution requirements.
43	Review an individual's ID and travel documents during the SPOT Referral Screening.
44	Verify that an individual's trip story is consistent with the individual's travel documents, the individual's accessible property, (b)(3):49 U.S.C. § 114(r)
49	Place items of interest discovered during the physical bag search on the table to aid and direct partner in casual conversation.
50	Confirm and concur with BDO partner that the bag search confirms or dispels trip story.
51	Obtain a trip story from the individual (b)(3):49 U.S.C. § 114(r) during the casual conversation.
53	Clear passenger for travel following resolution.
54	(b)(3):49 U.S.C. § 114(r)
57	Blend-in with other TSOs to make a seamless transition into the casual conversation process, once an individual has been identified for SPOT Referral Screening.
60	Use Additional Behavior Detection Training (ABDT) or other additional behavior detection techniques as tools when conducting the casual conversation.
68	Refer an individual to LEO if (b)(3):49 signs of deception are observed during the casual conversation.
KSAO #	KSAO Statement
6	Skill in effective listening
10	Detail-oriented
11	Skill in oral communication
13	Knowledge of information on travel documents
14	Skill in responding tactfully, sensitively, and appropriately, and treating others with respect
15	Knowledge of information on IDs
17	Able to work cooperatively with others to achieve shared goals
19	Cultural sensitivity: Able to recognize variations among cultures and treat all people with respect
24	Skill in clarifying information
25	Comfort with social interactions

³⁴ Relationships based on job analysts' rational judgments rather than SME ratings.

³⁵ Task/KSAO identification numbers correspond to those in Appendix AA.

Table 38. Tasks and KSAOs Related to the Conduct of the Casual Conversation³⁶
(Continued)

Task or KSAO Related to the Casual Conversation	
KSAO #	KSAO Statement (Continued)
26	Skill in remembering factual information, including numbers and procedures
27	Ability to retain and recall information
32	Able to multi-task
36	Skill in interacting with diverse individuals (e.g., differing backgrounds, ages)
37	Ability to quickly make sense of, combine, and organize information
68	Knowledge of the signs of deception (b)(3):49 U.S.C. § 114(r)
70	Skill in conducting an effective casual conversation to obtain resolution
93	Skill in using visual sensory information to make comparisons and/or evaluations
98	Knowledge of Additional Behavior Detection Training (ABDT) or other behavior detection techniques

Considerations regarding the casual conversation as it relates to BDO selection and training are described below.

Considerations for BDO Selection

Selection-related considerations for the casual conversation can be broken into two categories: candidate background and the job interview.

With regards to candidate background, currently, all BDOs have been hired from a TSO position. However, TSA may open the BDO job to non-TSO applicants in future recruitment efforts. In that scenario, greater emphasis could be placed on candidate background (e.g., experience, knowledge), as the applicant pool will be more diverse in terms of training received and previous work experience. During the site visits, SMEs demonstrated significant disagreement about the appropriate and/or ideal background of a BDO. Some believed that a background in law enforcement, corrections, or the military related to successful performance of the casual conversation due to related interrogative/inquisitive skills. Others expressed concern that background in these areas often contributed to interrogative approaches that negatively affected the conduct of a casual conversation.

In conjunction with, or as an alternative to, focusing on candidate background, skills related to the casual conversation could be assessed through other aspects of the selection process. For example, during the site visits, some SMEs suggested specific exercises to address observation skills, such as showing a job candidate a short video or a detailed photograph and then asking questions about the image that require the candidate to demonstrate attention to detail and the ability to recall information. This type of exercise relates directly to the casual conversation on the job.

³⁶ Relationships based on job analysts' rational judgments rather than SME ratings.

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Conflict resolution skills also relate to the casual conversation and could be assessed during the selection process. To assess these skills, the job candidate could be provided with brief written scenarios about conflict as it relates to the BDO job (e.g., conflict with a passenger). Each hypothetical scenario includes a set of behaviors that describe how a person in the situation could react to the situation. The candidate would be asked to identify the most appropriate or most effective response. This type of exercise provides a way to assess a candidate's performance in realistic, but hypothetical, job situations during the selection process.

Considerations for BDO Training

Training-related considerations for the casual conversation include the content and format of the initial BDO training and the need for refresher training.

Currently, the initial BDO training includes content on the casual conversation. However, given its importance to the BDO job and the comments of many SMEs throughout the job/task analysis process, the content and format of information on this topic may require further consideration. First, training time allotted for instruction on the casual conversation in the initial training may need to be increased. Second, BDOs may benefit from having greater emphasis during training

(b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r)

Finally, BDO training currently includes an OJT component. In addition to the indication from some SMEs that more OJT time was necessary to practice the skills required of a BDO, SMEs also noted that the current OJT time does not always provide an opportunity to practice a casual conversation.

In addition to considerations related to the content and format of the initial training, additional training on the casual conversation could be considered. This aspect of the BDO job is infrequently performed by many BDOs, especially those within small airport settings. Therefore, given its importance to the job, the infrequency of occurrence necessitates opportunities for practice and retraining. More specifically, many SMEs indicated a strong desire for refresher training.

(b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r)

As noted with the considerations related to BDO selection, practice of casual conversation skills is important to SMEs, as well as an important component to job training. Currently, the SPOT Validation Study is satisfying the request for opportunities to practice the casual conversation at participating airports. Another opportunity for practice, as also suggested by SMEs during the site visits, is to conduct on-the-job exercises that relate to the practice of the skills related to the

(b)(3):49 U.S.C. § 114(r)

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CS-4

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(b)(3):49 U.S.C. § 114(r)

Finally, the role of ABDT (b)(3):49 U.S.C. § 114(r) could be revisited. The BDO job/task analysis survey results indicated (b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r) If ABDT is intended for full integration into the SPOT program, considerations regarding its integration into either initial or refresher training content could be made.

Conclusion

Both the quantitative and qualitative data gathered and analyzed throughout the BDO job/task analysis update yielded areas of consideration regarding the casual conversation. This aspect of the BDO job is highly important to the success of the SPOT program, but in some cases, is performed infrequently. Incorporating skills related to this aspect of the job into the selection of BDOs helps ensure successful performance in this area on the job. (b)(3):49 U.S.C. § 114(r)

(b)(3):49 U.S.C. § 114(r)

CS-5

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