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The Development of the Hogan Competency Model

HOGAN

1 – INTRODUCTION

1.1 Background

During the past three years, Hogan Assessment Systems (hereafter "Hogan") witnessed an increase in the number of requests for competency-based reports as more organizations develop and use competency models. To identify relationships between commonly used competencies and personality, we developed the Hogan Competency Model (HCM). This model provides a foundation for (a) updating the competency section of Hogan's job analysis tool, the Job Evaluation Tool (JET); (b) developing algorithms that drive client competency-based reports; (c) providing a structure for coding criterion data in the Hogan archive, and (d) updating the synthetic validity evidence used for validity generalization (VG).

This report outlines the development of the HCM and describes how the Hogan Research Division (hereafter "HRD") uses the model to conduct personality-related research. The HCM has three advantages. First, we designed the model to have minimal overlap between competencies, allowing us to better measure specific behaviors. Second, we designed competencies to target specific areas of performance. In contrast, many models target several behaviors with a single competency. This lack of specificity contaminates measurement and subsequent prediction of the competency. Finally, our development process centered on a review of twenty-one competency models used across academic, commercial, and government settings. This both assures that the model is comprehensive and that it can be easily compared to and used in conjunction with other competency models.

1.2 History and Development of Competency Modeling

Global markets require organizations to simultaneously work within different locations, legal environments, and cultures. One strategy for facing this challenge is restructuring jobs, such as reducing management layers and relying on work teams, to increase adaptability and responsiveness (Ashkenas, Ulrich, Jick, & Kerr, 1995; Howard, 1995; Keidel, 1994). As a result, traditional task-based job analysis procedures may lack the flexibility required to identify the knowledge, skills, and abilities essential for success in many jobs (Barnes-Nelson, 1996; Olian & Rynes, 1991; Sanchez, 1994). Therefore, organizations often use competency models to align many of their Human Resource Management applications.

The work of David McClelland (1973) set the stage for the widespread growth of competencies. McClelland argued that aptitude tests, almost universally used to predict performance, do not serve their intended purpose well and are prone to cultural biases. Also, he argued that other traditional measures, such as examination results and references, are equally poor at predicting job success. Instead, McClelland suggested that individual competence might provide a more promising alternative for predicting performance. He described competencies as representing groups of behaviors underlying individual characteristics that enable superior job performance.

Competencies appear in educational, training, employment, and assessment contexts, where often a primary goal is identifying individual characteristics that lead to success (Boyatzis, Stubbs, & Taylor, 2002; Rubin et al., 2007; Spencer & Spencer, 1993). Companies can link individual characteristics

to competencies that represent critical job components. Then they can use this information to select individuals with these characteristics and guide development and training efforts.

The 1980s witnessed a growth in using competencies to identify and predict leadership effectiveness and long-term success (Boyatzis, 1982; McClelland & Boyatzis, 1982). These applications led to the development of high-level management and leadership competency models (Hollenbeck, McCall, & Silzer, 2006) and competency-based selection tools, such as behavioral event interviews (Boyatzis, 1994; McClelland, 1998; Spencer, McClelland, & Spencer, 1994). Competencies also provide a structure for linking performance with cognitive ability and personality (Heinsman, de Hoogh, Koopman, & van Muijen, 2007), coaching employees to overcome dysfunctional behavior (Boyatzis, 2006), and selecting and developing high potential employees (McClelland, 1994).

2 – DEVELOPMENT OF HOGAN COMPETENCY MODEL

2.1 Competency Evaluation Tool (CET)

The Competency Evaluation Tool (CET), which most recently contained items representing 56 competencies, is a standard part of the JET. Although the CET has undergone several changes, ranging at times from 41 to 65 competencies, the 56-item version was in place for 5 years prior to the changes described in this report. The CET asks Subject Matter Experts (SMEs) to indicate the degree to which each competency relates to successful performance in the job or job family under study. SMEs, anyone that is familiar with the job's requirements and characteristics that lead to high performance, typically include supervisors, high performing incumbents, and co-workers. Direct reports, trainers, and customers have also served as JET SMEs. SME ratings provide a basis for structural models used to examine comparability of job domains and their competencies across jobs (J. Hogan, Davies, & R. Hogan, 2007).

Although the CET remains a useful and integral part of Hogan's job analysis process, an increasing amount of work based on client's competency models lead to a critical review of the most recent 56-item version of the CET. We concluded that three areas needed to be addressed. First, some competency definitions required revision because they (a) included multiple concepts, (b) overlapped significantly with other competencies, and/or (c) were unclear. Second, some competencies that companies commonly included in their models were missing from the 56-item version of the CET. Third, there was no underlying structure to the model. As outlined in section 2.2, we incorporated the Domain Model of performance (Hogan & Warrenfeltz, 2003; Warrenfeltz, 1995) into the HCM as the main structure of the taxonomy.

2.2 Domain Model

Researchers can use the Domain Model to effectively classify existing competencies into a comprehensive and meaningful performance model (Hogan & Warrenfeltz, 2003; Warrenfeltz, 1995), leading to easier interpretations of and comparisons across models. The Domain Model contains four domains:

- Intrapersonal Skills – Intrapersonal skills develop early in childhood and have important consequences for career development in adulthood. Core components include core-self esteem, resiliency, and self-control. Intrapersonal skills form the foundation on which careers develop.

- Interpersonal Skills - Interpersonal skills concern building and sustaining relationships. Interpersonal skills can be described in terms of three components: (a) an ability to put oneself in the position of another person, (b) an ability to accurately perceive and anticipate other's expectations, and (c) an ability to incorporate information about the other person's expectations into subsequent behavior.

- Technical Skills (work skills) - Technical skills differ from Intrapersonal and Interpersonal skills in that they are (a) the last to develop, (b) the easiest to teach, (c) the most cognitive, and (d) the least dependent upon dealing with other people. Technical skills involve

comparing, compiling, innovating, computing, analyzing, coordinating, synthesizing, and so on.

- Leadership Skills - Leadership skills can be understood in terms of five components that depend upon intrapersonal, interpersonal, and technical skills. First, leadership skills entail an ability to recruit talented people to join the team. Second, one must be able to retain talent once it has been recruited. Third, one must be able to motivate a team. Fourth, effective leaders are able to develop and promote a vision for the team. Finally, leadership skill involves being persistent and hard to discourage.

R. Hogan and Warrenfeltz (2003) suggest that the four domains form a natural, overlapping developmental sequence, with the latter skills (e.g., Leadership Skills) depending on the appropriate development of the earlier skills (e.g., Intrapersonal Skills). Each of the performance domains can be further decomposed into various performance dimensions or competencies. Table 2.1 outlines the complete domain model, illustrating the links between common competencies associated with each domain and Five Factor Model (FFM) personality measures. Each competency in the HCM falls under one of the four domains.

Table 2.1 Domain Model of Job Performance, Example Competencies, and Personality Measures

Metaconcept	Domain	Example Competency	FFM Measurement
Getting Ahead	Leadership	Achievement Building Teams Business Acumen Decision Making Delegation Employee Development Initiative Leadership Managing Performance Resource Management	Surgency/Extraversion
	Technical	Analysis Creating Knowledge Decision Making Political Awareness Presentation Skills Problem Solving Safety Technical Skill Training Performance Written Communication	Openness to Experience
Getting Along	Interpersonal	Building Relationships Communication Consultative Skills Cooperating Influence Interpersonal Skill Organizational Citizenship Service Orientation Teamwork Trustworthiness	Agreeableness Surgency/Extraversion
	Intrapersonal	Dependability Detail Orientation Flexibility Following Procedures Integrity Planning Respect Risk Taking Stress Tolerance Work Attitude	Conscientiousness Emotional Stability

2.3 Creating the HCM

HRD designed the HCM to align with other well known competency models and personality measures. The development of the HCM included five steps. First, we reviewed the competency definitions in the 56-item version of the CET, flagging competencies that measured multiple constructs or overlapped with other competencies. Next, we reviewed 21 academic, commercial, and government competency models and compared them to the CET (see Appendix A for a list of the models). Three HRD researchers independently mapped the original 56 competencies to each comparison model. Based on all available information from the first two steps, we eliminated redundant competencies, clarified definitions, and added frequently occurring and missing competencies. Fourth, we obtained feedback from non-Industrial/Organizational (I/O) professionals on the revised list of competencies. Finally, four HRD researchers again independently mapped the revised competency model to each of the 21 comparison models. The resulting model included 58 competencies in addition to the 4 domains. The following sections further delineate these steps.

2.3.1 Competency Definitions

We began by examining the competencies and definitions on the 56-item version of the CET. First, HRD identified overlapping competencies by examining competency definitions and correlating CET ratings obtained on a sample of over 500 jobs. Results indicated that several competencies overlapped both conceptually and statistically. For example, Trustworthiness and Integrity overlapped significantly, as did Adaptability and Flexibility. Furthermore, other models often treated these and other pairings as one competency.

Next, we reviewed competency definitions. We flagged competency definitions that (a) included the competency name in the definition, (b) contained multiple concepts, (c) overlapped with other competencies, or (d) were generally unclear. For example, Innovation was defined as "finding innovative solutions…," and the definition of Planning/Organizing addressed multiple concepts (resource management and time management) but not aspects of organization typically addressed by similar competencies in other models.

2.3.2 Competitor and Academic Competency Models

Next, we reviewed 21 independent competency models and compared the CET to the identified models. These models came from academic, commercial, and government sources. We identified competency models using three strategies. First, we conducted a literature search for publications outlining relevant competency models (e.g. Tett, Guterman, Bleir, & Murphy, 2000). Next, we contacted partner organizations, including clients and distributors, and asked for their competency models. Finally, we contacted companies and competitors with well advertised or commonly used models (e.g. SHL, Bartram, 2005). We only reviewed complete models containing complete competency definitions. Our final sample consisted of six commercial models, twelve academic models, and three from government agencies. Appendix A presents a complete list of the models.

2.3.3 Competency Mapping

Competency mapping consisted of three phases.

Phase 1: I/O Professionals. Three HRD researchers independently mapped the CET to each competency in the 21 comparison models. Raters indicated if the competencies in the other models mapped directly to a Hogan competency, more than one Hogan competency, or none. In addition, each rater maintained a list of frequently occurring competencies that mapped poorly to Hogan competencies or were not included in the Hogan model. We aggregated the results and the raters met to resolve conflicts and reach a final consensus. Based on these final results and our previous review of competency definitions (section 2.3.1), we eliminated redundant competencies, clarified definitions, and added missing competencies.

Phase 2: Non I/O Professionals. To better represent individuals who will use the model in the future, we asked four non-I/O professionals to provide feedback on the revised list of competencies. Our goal was to ensure that all competencies were easy for the target population to understand and use. We obtained feedback from non-I/O professionals with extensive business experience and expertise in different areas (IT, Finance, Sales, and Operations). First, each individual independently mapped each competency into the Domain Model, noting if each competency fell under one primary domain and potentially a secondary domain. Second, they provided recommendations for the content and phrasing of the competency names and definitions. The raters successfully placed forty-three of the competencies into the same domain, indicating high rater agreement. Furthermore, no rater noted any problems with the competency model names and definitions, indicating that the model is intuitive and not overly laden with I/O jargon.

Phase 3: Re-mapping: I/O Professionals. Finally, four HRD researchers again independently mapped the revised competency model to each of the 21 comparison models and met to reach a final consensus. The number of competencies that mapped to the comparison models greatly increased from phase 1. However, we found a few definitions that needed further revision and identified four additional competencies for inclusion. For example, because 7 of the 21 comparison models contained Valuing Diversity, we added it to the Hogan model. The resulting competency model includes 58 competencies plus names and definitions for the 4 components of the Domain Model. Appendix B presents the resulting HCM.

After finalizing the model, we calculated the frequency of use for each competency across all 21 comparison competency models. Appendix C presents these results. Overall, each Hogan competency averaged 7 mappings. We mapped each model to the Hogan model a minimum of three times. This represents over 12,480 individual comparisons of the Hogan model to the comparison models. This finding provides further support for the comprehensiveness of the Hogan model. Also, we calculated the domain use frequency. Interpersonal, Leadership, and Technical skills contain a similar number of competencies, whereas Intrapersonal skill is the most frequently used domain.

3 – USING THE HOGAN COMPETENCY MODEL

3.1 Job Analysis

The JET contains five sections. The first four align with Hogan inventories (the HPI, HDS, MVPI, and HBRI); the fifth is the Competency Evaluation Tool (CET). The CET asks SMEs to indicate the degree to which each of the listed competencies relates to successful performance in the job or job family under study. Raters evaluate each competency using a five-point scale ranging from "0" (*Not associated with job performance*) to "4" (*Critical to job performance*). Critical competencies must receive an average score of at least "3" (*Important to performance*). These ratings serve a number of purposes, such as identifying competencies to use in synthetic validation for the HPI and HDS, showing similarities across roles in job comparison studies, determining the importance of an organization's existing competency model components, or serving as the foundation for creating a new competency model to represent and drive performance for a job or job family.

3.2 Competency Mapping Studies

As more companies use competency models for a variety of purposes, the need to align personality instruments with customized competency models continues to grow. Although competency models invariably differ across organizations, similarities often exist. HRD developed the HCM to capture these similarities by continually reviewing a wide range of existing competency models throughout the development process. As a result, HRD can easily map HCM competencies to the vast majority of competencies presented in other models.

During the mapping process, Hogan SMEs, consisting of expert Ph.D. and Masters-level practitioners, evaluate both competency models and indicate which HCM competencies align with each of the client's competencies.   Often, client competencies are broad and align with multiple HCM competencies. When that is the case, HRD can combine HCM competencies to adequately align with the client's model. During the mapping process, HRD resolves disagreements among SMEs through a group decision-making task where they discuss the disagreement(s) and come to a consensus as to which HCM competency best aligns with the corresponding client competency.

Competency mapping studies serve a number of purposes, such as identifying personality scales that are predictive of performance for a job or aligning CET results to verify that competencies in a client's existing model are important for performance. Competency mapping studies may also be the first step in more comprehensive studies, such as those described in sections 3.3, 3.4, and 3.5. By first aligning HCM competencies with competencies in a client's model, HRD can more effectively use JET data and data in the Hogan archive to answer critical research questions.

3.3 Criterion-Related Research

Aguinis, Henle, and Ostroff (2001) described criterion-related validity in terms of the relationship between the predictor (e.g., HPI Scales) and some criterion measure (e.g., job performance), with the goal of answering the basic question: how accurate are test scores in predicting criterion performance? Criterion-related validity not only provides the most direct evidence of relationships between predictor scores and job performance, but serves as the foundation for VG studies and the development of off-the-shelf selection solutions. As such, researchers have conducted criterion-

related validation studies using Hogan assessments on over 250 jobs and job families over the last 30 years. The Hogan archive contains data and results from these studies, which cover a range of industries, organizations, and jobs.

The *Uniform Guidelines* state that "evidence of the validity of a test or other selection procedure by a criterion-related validity study should consist of empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance" (29 C.F.R. § § 1607.5 (B)). Ratings gathered from performance rating forms serve as the most commonly used and often most informative source of criterion data. HRD frequently uses CET results to inform the creation of performance rating forms for criterion-related validation studies. Specifically, we use CET ratings to identify the 10-15 most important competencies for a job or job family. Then, HRD writes performance-related items for each competency, assuring that performance ratings gathered from criterion-related validation are both comprehensive and job relevant.

3.4 Synthetic Validity/Job Component Validity

Mossholder and Arvey (1984) defined synthetic validity as "the logical process of inferring test-battery validity from predetermined validities of the tests for basic work components" (p. 323). If we know the key components of a job, we can review prior criterion-related studies predicting those components. We then "synthesize" the valid predictors of the key job components into an assessment battery for the new job (Balma, 1959; Lawshe, 1952). Brannick and Levine (2002) point out that synthetic validity allows us to build validity evidence from small samples with common job components. Although not popular at its inception, published research on synthetic validity has become increasing more common (e.g., Hoffman, Holden, & Gale, 2000; Jeanneret & Strong, 2003; Johnson, Carter, Davison, & Oliver, 2001; McCloy, 1994, 2001; Scherbaum, 2005).

J. Hogan, Davies, and R. Hogan (2007) outline the process Hogan uses for synthetic validity. Synthetic validation involves (a) identifying the important components of a job or jobs comprising a job family, (b) reviewing prior research on the prediction of each component, and (c) aggregating correlations across multiple studies for each component to form a test battery (Scherbaum, 2005). Because the concept of synthetic validity has evolved over 50 years, Hogan uses interchangeably the terms criteria, performance dimensions, job components, work components, competencies, and domains of work. Thus, the competencies in the HCM serve as job components and provide a structure for coding data in the Hogan archive.

The first step in synthetic validation is conducting a job analysis where SMEs identify the important components of a job. Using data in the Hogan archive, HRD developed and maintains a synthetic validity table that shows relationships between assessment results and each HCM competency. These results represent relationships between predictor scores and competency performance across organizations, industries and jobs. The most recent update to this table occurred during the summer and fall of 2009 when HRD mapped performance results from thousands of criteria measures collected from over 260 jobs onto the HCM competencies. HRD then conducted a series of meta-analyses (see Hunter & Schmidt, 2004) to combine results across studies. These meta-analyses provide stable estimates of the relationships between results on both the HPI and HDS and job performance ratings aligned with the HCM competencies.

3.5 Competency-Based Reports

Hogan generates two types of competency-based reports. First, client-specific reports present results in terms of predictive scores on client competency models. HRD uses competency mapping and both local criterion-related research and archival data to create predictor scales from HPI, HDS, and MVPI results. Second, off-the-shelf competency-based reports, such as the Safety report and the High Potential report, present predictor scores on competency models that are specific to areas of performance but generalize across jobs. For example, safety is an important component of many jobs. Hogan developed a Safety Competency model containing six dimensions that represent different components of safe behavior. HRD then used archival data to create predictor scales for each dimension from HPI results.

3.6 Conclusions

Competency models have several advantages. First, when coupled with job analysis, the use of competencies ensures that organizations focus on job relevant behaviors. This both increases the predictive accuracy of a selection system and minimizes legal risk. Second, competency-based reports present personality assessment results using language that is familiar to the client. Third, they allow organizations to streamline their selection process by focusing on competencies that (a) are often assessed using other selection instruments, thereby increasing the predictive accuracy of the overall selection system by assessing competencies through multiple methods; and (b) are important for a number of jobs, thereby allowing the organization to determine an applicant's fit with multiple jobs at once. Finally, they allow organizations to streamline interventions with existing employees, such as development/training efforts and performance assessment across departments and functions.

The HCM represents a significant improvement in Hogan's ability to provide clients with effective and easy to use competency based solutions. These solutions allow clients to align personality assessment results with other organizational interventions aimed at hiring successful employees and developing existing employees. HRD developed the HCM using a unique and elaborate process to ensure that the model (a) comprehensively covers the majority of behaviors required for success across organizations, industries, and jobs; (b) easily maps onto the majority of competencies in existing models; and (c) can be used to produce results that are both easy to use and understand.

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Appendix A: Academic and Company Competency Models

Model	Reference	Model Type
Borman & Brush	Borman, W.C., & Brush, D.H. (1993). More progress toward a taxonomy of managerial performance requirements. Human Performance, 6, 1-21.	Academic
Campbell, McCloy, Oppler, & Sager	Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. In N. Schmitt & W. C. Borman (Eds.) Personnel selection in organization (pp. 35-70). San Fransico: Jossey-Bass.	Academic
Flanagan	Flanagan, J. C., (1951). Defining the requirements of the executive's job. Personnel, 28, 28-35.	Academic
Hemphill	Hemphill, J. K., (1959). Job descritpions for executives. Harvard Business Review, 37, 55-67.	Academic
Katzell	Katzell, R. A., Barret, R. S., Vann, D. H., & Hogan J. M. (1968). Organizational correlates of executive roles. Journal of Applied Psychology, 52, 22-28.	Academic
Luthans & Lockwood	Luthans, F., & Lockwood, D. L. (1984). Toward an observation system for measuring leader behavior in natural settings. In J. G. Hunt, D. Hosking, C. Schrieshem, & R. Steward (Eds.), Leaders and managers: International perspectives on managerial behavior	Academic
Morse & Wagner	Morse, J. J., & Wagner, F. R. (1978). Measuring the process of managerial effectiveness. Academy of Management Journal, 21, 23-35.	Academic
Prien	Prien, E. P. (1963). Development of a supervisor description questionnaire. Journal of Applied Psychology, 47, 10-14.	Academic
Tett, Guterman, Bleir, & Murphy	Tett, R. P., Guterman, H. A., Bleier, A., & Murphy, P. J., (2000). Development and Content Validation of a "Hyperdimensional" Taxonomy of Managerial Competence. Human Performance, 12(3), 205-251.	Academic
Tornow, & Pinto	Tornow, W.W., & Pinto, P.R. (1976). The development of a managerial job taxonomy: A system for describing, classifying, and evaluating executive positions. Journal of Applied Psychology, 61, 410-418.	Academic
Woffard	Wofford, J. C. (1970). Factor analysis of managerial behavior variables. Journal of Applied Psychology, 54, 169-173.	Academic
Yukl Lepsinger	Yukl, G. A., & Lepsinger, R. (1992). An integrating taxonomy of manager behavior: Implications for improving managerial effectiveness. In J. W. Jones, B. D. Steffy, & D. W. Bray (Eds.), Applying psychology in business: The manager's handbook (pp. 563-572)	Academic

Model	Reference	Model Type
Bigby Havis	https://www.bigby.com/systems/assessv2/admin/whitepaper.htm	Commercial
Jeaneret & Associates	Tett, R. P., Guterman, H. A., Bleier, A., & Murphy, P. J., (2000). Development and Content Validation of a "Hyperdimensional" Taxonomy of Managerial Competence. Human Performance, 12(3), 205-251.	Commercial
Lominger	Lombardo, M. M. & Eichinger, R. W. (2002). The leadership machine (3rd edn.). Mineapolis: Lominger Limited Inc. Lombardo, M. M. & Eichinger, R. W. (2003). FYI: For your improvement (3rd edn.). Mineapolis: Lominger Limited Inc.	Commercial
PDI	Tett, R. P., Guterman, H. A., Bleier, A., & Murphy, P. J., (2000). Development and Content Validation of a "Hyperdimensional" Taxonomy of Managerial Competence. Human Performance, 12(3), 205-251.	Commercial
Select International	Internal Company Source	Commercial
SHL	Bartram, D. (2005). The Great Eight Competencies: A Criterion-Centric Approach to Validation. Journal of Applied Psychology, 90(6), 1185-1203.	Commercial
Career One Stop (U.S. Department of Labor-sponsored Web site)	www.careeronestop.org	Governmental
O*NET	www.onetcenter.org	Governmental
Office of Personnel Management	www.opm.com	Governmental

Appendix B: Hogan Competency Model (2009)

Competency Number	Competency	Definition	Domain
1	Achievement Orientation	Driven to accomplish goals and complete tasks	Intrapersonal Skill
2	Active Listening	Listens and restates the ideas and opinions of others to improve mutual understanding	Interpersonal Skill
3	Ambiguity Tolerance	Deals comfortably with unclear situations and problems	Intrapersonal Skill
4	Building Relationships	Develops collaborative relationships to facilitate current or future goals	Interpersonal Skill
5	Building Teams	Assembles cohesive groups based upon required skills, goals, and tasks	Leadership
6	Business Acumen	Demonstrates keen insight and application of business policies and procedures	Leadership
7	Caring	Displays sensitivity towards the attitudes, feelings, or circumstances of others	Intrapersonal Skill
8	Citizenship	Goes beyond job requirements to help the organization	Interpersonal Skill
9	Competitive	Driven to exceed the performance of others	Intrapersonal Skill
10	Decision Making	Uses sound judgment to make timely and effective decisions	Leadership
11	Delegation	Assigns work based on task and skill requirements	Leadership
12	Dependability	Performs work in a consistent and timely manner	Intrapersonal Skill
13	Detail Orientation	Performs work with care, accuracy, and attention to detail	Intrapersonal Skill
14	Employee Development	Provides support, coaching, training, and career direction to peers and subordinates	Leadership
15	Financial Acumen	Demonstrates keen insight and application of budgeting, financial policies and procedures	Work Skill
16	Flexibility	Willing to receive and accept new ideas, approaches, and strategies	Intrapersonal Skill
17	Following Procedures	Adheres to directions, policies, and/or legal guidelines	Intrapersonal Skill
18	Goal Setting	Identifies short-term objectives and steps to achieve them	Work Skill
19	Industry Knowledge	Demonstrates an understanding of industry knowledge and trends	Work Skill
20	Influence	Persuades others to a desired result	Interpersonal Skill
21	Information Analysis	Gathers, organizes, and analyzes diverse sources of information	Work Skill
22	Initiative	Takes action without the direction of others	Intrapersonal Skill
23	Innovation	Generates creative ideas and perspectives	Work Skill

Competency Number	Competency	Definition	Domain
24	Managing Change	Effectively implements new methods and systems	Leadership
25	Managing Conflict	Manages hostility between individuals or groups when disagreements occur	Leadership
26	Managing Performance	Monitors performance providing feedback for improvement as needed	Leadership
27	Motivating Others	Fosters energy for and provides direction towards organizational goals	Leadership
28	Negotiation	Explores alternatives to reach outcomes acceptable to all parties	Interpersonal Skill
29	Oral Communication	Expresses himself/herself effectively through verbal communication	Interpersonal Skill
30	Organizational Commitment	Demonstrates loyalty and dedication to the organization	Interpersonal Skill
31	Perseverance	Pursues goals despite obstacles and/or challenges	Intrapersonal Skill
32	Planning/Organizing	Coordinates and directs routine activities effectively	Intrapersonal Skill
33	Political Awareness	Recognizes and works within the political environment of an organization	Work Skill
34	Presentation Skills	Effectively presents ideas and information to others	Work Skill
35	Problem Identification	Detects errors, gaps, and potential flaws in goals and tasks	Work Skill
36	Problem Solving	Identifies solutions given available information	Work Skill
37	Professionalism	Acts in accordance with job-related values, principles, and standards	Intrapersonal Skill
38	Quality Orientation	Emphasizes producing quality products and/or meeting quality standards	Work Skill
39	Resource Management	Coordinates people and materials to maximize productivity and efficiency	Leadership
40	Responsibility	Accepts personal accountability for actions regardless of outcomes	Intrapersonal Skill
41	Risk Management	Takes appropriate chances to achieve goals while considering possible negative consequences	Intrapersonal Skill
42	Safety	Follows safety precautions and displays safe on-the-job behavior	Work Skill
43	Sales Ability	Effectively demonstrates, promotes, and sells products and services	Work Skill
44	Self Confidence	Believes in oneself to accomplish tasks/goals	Intrapersonal Skill
45	Self Development	Actively acquires knowledge, skills, and abilities to remain current with job requirements	Intrapersonal Skill
46	Service Orientation	Creates customer loyalty through courteous, timely, and helpful service	Interpersonal Skill
47	Social Engagement	Enjoys and seeks out interactions with others	Interpersonal Skill
48	Strategic Planning	Develops strategies to accomplish long-term goals	Leadership
49	Stress Tolerance	Handles pressure without getting upset, moody, or anxious	Intrapersonal Skill

Competency Number	Competency	Definition	Domain
50	Talent Management	Recruits, rewards, and retains individuals with critical skills and abilities	Leadership
51	Teamwork	Collaborates with others to achieve goals	Interpersonal Skill
52	Time Management	Plans work to maximize efficiency and minimize downtime	Intrapersonal Skill
53	Trustworthiness	Acts with honesty and integrity	Intrapersonal Skill
54	Valuing Diversity	Respects, values, and leverages individual differences	Interpersonal Skill
55	Vigilance	Remains alert and focused when performing monotonous tasks	Intrapersonal Skill
56	Work Attitude	Displays a positive disposition towards work	Intrapersonal Skill
57	Work Ethic	Exhibits hard work and diligence	Intrapersonal Skill
58	Written Communication	Effectively expresses him or herself through written communication	Work Skill
59	Interpersonal Skills	Gets along well with others, is tactful, and behaves appropriately in social situations	
60	Intrapersonal Skills	Demonstrates the appropriate motivation, attitude, and self-control to effectively perform on the job	
61	Leadership	Demonstrates general leadership ability and effectiveness	
62	Work Skills	Uses existing technology and job-relevant abilities to perform tasks	

Appendix C

C.1 Frequency of Competency Mapping

Competency	Frequency	Percent	Valid Percent	Cumulative Percent
Achievement Orientation	14	1.68	1.68	1.68
Active Listening	6	0.72	0.72	2.40
Ambiguity Tolerance	3	0.36	0.36	2.76
Building Relationships	5	0.60	0.60	3.37
Building Teams	2	0.24	0.24	3.61
Business Acumen	4	0.48	0.48	4.09
Caring	6	0.72	0.72	4.81
Citizenship	1	0.12	0.12	4.93
Competitive	1	0.12	0.12	5.05
Decision Making	12	1.44	1.44	6.49
Delegation	8	0.96	0.96	7.45
Dependability	2	0.24	0.24	7.69
Detail Orientation	3	0.36	0.36	8.05
Employee Development	18	2.16	2.16	10.22
Financial Acumen	10	1.20	1.20	11.42
Flexibility	13	1.56	1.56	12.98
Following Procedures	6	0.72	0.72	13.70
Goal Setting	3	0.36	0.36	14.06
Industry Knowledge	1	0.12	0.12	14.18
Influence	7	0.84	0.84	15.02
Information Analysis	13	1.56	1.56	16.59
Initiative	8	0.96	0.96	17.55
Innovation	10	1.20	1.20	18.75
Managing Change	5	0.60	0.60	19.35
Managing Conflict	7	0.84	0.84	20.19
Managing Performance	16	1.92	1.92	22.12
Motivating Others	10	1.20	1.20	23.32
Negotiation	6	0.72	0.72	24.04
Oral Communication	4	0.48	0.48	24.52
Organizational Commitment	4	0.48	0.48	25.00
Perseverance	6	0.72	0.72	25.72
Planning/Organizing	12	1.44	1.44	27.16
Political Awareness	9	1.08	1.08	28.25
Presentation Skills	5	0.60	0.60	28.85
Problem Identification	1	0.12	0.12	28.97
Problem Solving	9	1.08	1.08	30.05
Professionalism	9	1.08	1.08	31.13
Quality Orientation	10	1.20	1.20	32.33

Competency	Frequency	Percent	Valid Percent	Cumulative Percent
Resource Management	7	0.84	0.84	33.17
Responsibility	12	1.44	1.44	34.62
Risk Management	3	0.36	0.36	34.98
Safety	5	0.60	0.60	35.58
Sales Ability	4	0.48	0.48	36.06
Self Confidence	3	0.36	0.36	36.42
Self Development	24	2.88	2.88	39.30
Service Orientation	10	1.20	1.20	40.50
Social Engagement	3	0.36	0.36	40.87
Strategic Planning	16	1.92	1.92	42.79
Stress Tolerance	9	1.08	1.08	43.87
Talent Management	14	1.68	1.68	45.55
Teamwork	10	1.20	1.20	46.75
Time Management	4	0.48	0.48	47.24
Trustworthiness	9	1.08	1.08	48.32
Valuing Diversity	10	1.20	1.20	49.52
Vigilance	1	0.12	0.12	49.64
Work Attitude	3	0.36	0.36	50.00
Work Ethic	3	0.36	0.36	50.36
Written Communication	13	1.56	1.56	51.92
No Match	298	35.82	35.82	87.74
Multiple Match	100	12.02	12.02	99.76
Non-consensus	2	0.24	0.24	100.00
Total	832	100	100	

C.2 Frequency of Domain Mapping

Domain	Frequency	Percent	Valid Percent	Cumulative Percent
Intrapersonal Skill	154	18.51	18.51	18.51
Interpersonal Skill	66	7.93	7.93	26.44
Leadership	119	14.30	14.30	40.75
Work Skill	93	11.18	11.18	51.92
No Match/Multiple	400	48.08	48.08	100.00
Total	832	100	100	