Validation of an Off-the-Shelf Competency Solution for Nine Job Families

Blaine Gaddis, Hogan Assessment Systems

Heather Hayes, Camber Corporation

This paper was accepted as a SIOP poster for the 2017 conference.

Hogan Research Division

Abstract

Many organizations develop competency models to guide HRM efforts, but models may be based in business trends more than science, making validity evidence scarce. We developed and validated an off-the-shelf competency solution to help organizations identify individuals with personal characteristics aligned with critical competencies for nine job families.

Introduction

Global markets require organizations to work across locations, legal environments, and cultures. Therefore, organizations often use competency models to align their Human Resource Management (HRM) applications. Companies can link individual characteristics to competencies representing critical job components, then use this information to select individuals with these characteristics and guide subsequent development efforts (Schippmann et al., 2000).

Numerous organizations devote resources to developing competency models and using them as a framework for their HRM initiatives, but many of these efforts are driven by business jargon, corporate buzzwords, and a desired corporate culture instead of scientific development and validation. As such, the reliability, validity, and legal defensibility of these systems may come into question.

As a solution, we offer an off-the-shelf system designed for companies interested in comparing individuals on critical competencies for any job. This document describes the scientific development and validation of this system across nine job families. It uses (a) a job family structure based in the Equal Employment Opportunity Commission (EEOC), (b) job analysis data used to identify critical competencies in those jobs, and (c) performance-based evidence showing which personality dimensions predict those competencies. We begin by describing the development of our job family structure.

Method

Development Procedures

Job family structure

Job families are groups of occupations classified as similar based on work performed, skills, education, training, and other credentials required for competence. We began with a list of seven job families (i.e., Managers & Executives, Professionals, Technicians & Specialists, Operations & Trades, Sales & Customer Support, Administrative & Clerical, and Service & Support) used by the Equal Employment Opportunity Commission (EEOC) for employers in the United States (Equal Employment Opportunity Commission, 1978). We chose this structure because it is used by a large percentage of employers and conceptually clear and easy to use for reporting purposes.

However, we made two important changes to differentiate jobs within two families. Specifically, we separated the Managers & Executives job family into the Executives job family and the Managers job family because the work activities and personal characteristics required for success in executive versus middle management jobs differ. Similarly, we separated the Sales & Customer Support job family into the Sales job family and the Customer Support job family because the personal characteristics and work activities involved with persuasion and meeting sales objectives are different from those focused on resolving problems and tactfully handling complaints. Table 1 provides our job families and their definitions. Using this structure, we next needed a competency taxonomy, a method to identify critical competencies for the job families, and a means of using personality to predict competency performance. We describe the development of our competency model next.

Competency model

We designed our competency model to align with other well-known academic and applied competency models. First, we reviewed an existing model with 56 competencies. We identified overlapping competencies by reviewing definitions and correlating ratings obtained on a sample of over 500 jobs. We also flagged competency definitions that (a) included the competency name, (b) contained multiple concepts, (c) overlapped with other competencies, or (d) were generally unclear.

Next, we reviewed 12 academic, 6 commercial, and 3 government competency models, comparing them to the 56 competencies. We identified these models by (a) reviewing the literature for publications with relevant competency models (e.g. Tett, Guterman, Bleir, & Murphy, 2000), (b) requesting organizational competency models, and (c) contacting companies with well-known competency models (e.g. SHL, Bartram, 2005).

Afterward, three researchers independently mapped the original 56 competencies to each comparison model. We aggregated results, and raters met to resolve conflicts and reach consensus. During this meeting we eliminated redundancies, added missing competencies, and clarified definitions. We next we obtained feedback from outside professionals on the revised list of competencies. Each individual independently mapped each competency and provided recommendations for the content and phrasing of the competency names and definitions. Finally, four researchers again independently mapped the revised competency model to each of the 21 comparison models and met to reach consensus. The resulting model presented in Table 2 includes 62 competencies. Next, we used job analysis evidence to specify critical competencies from our model for each job family.

Job analysis evidence

To identify the most critical competencies for each job family, we collected data using the Job Evaluation Tool (JET). The JET represents one of the most extensively researched, reliable, and valid worker-oriented job analysis tools available (Foster, Gaddis, & Hogan, 2012). The JET data archive includes job analysis data from over 18,000 respondents representing thousands of jobs, ensuring comprehensive coverage of a wide range of occupations (Hogan Assessment Systems, 2009).

Included in the JET is the Competency Evaluation Tool (CET), which includes items representing the 62 competencies in our model. The CET asks Subject Matter Experts (SMEs) to indicate the degree to which each competency relates to successful performance in the job under study. SMEs are typically high performing incumbents or supervisors who provide a representative sample of occupational and demographic strata. SME ratings provide a basis for comparing job families and competencies across jobs (J. Hogan, Davies, & R. Hogan, 2007).

When completing the CET, raters evaluate each competency using a five-point scale ranging from 0 (*Not associated with job performance*) to 4 (*Critical to job performance*). Competencies deemed job-critical must receive an average score of at least 3 (*Important to performance*) across SMEs. Below, we describe how we used these data to specify the most critical competencies for the nine job families.

Top competencies by job family

Using archived CET ratings, we identified the most critical competencies for the nine job families. Specifically, we used the JET data archive to identify studies examining jobs within each job family, then aggregated those data to obtain rank-ordered competency ratings across all jobs for each job family. However, because studies used varying numbers of SMEs, we calculated mean ratings for each of the 62 competencies within each study. As such, each study contributed only one data point for each competency, ensuring that no single study biased results for any job family. Using those study-level mean competency ratings, we calculated mean criticality ratings for all 62 competencies for each job family and rank-ordered the competencies in descending order of criticality for successful performance in each job family. For example, SMEs across Sales jobs ranked Sales Focus as a critical competency, whereas Safety Focus emerged as a critical competency for Operations and Trades jobs. With our job families, competency model, and critical competencies for each job family set, we next sought to predict performance for each competency using personality scale scores.

Validation Procedures

Linking personality dimensions to competencies

The Hogan research archive contains information from over 1,000 research studies conducted since 1981. Each year, researchers update it with evidence from 10 - 15 criterion studies conducted the previous year. These new studies allow researchers to maintain and continuously improve synthetic validity benchmarks. We used this synthetic/job component validation strategy to identify the best predictors of performance for each competency.

This process involved (a) identifying the most critical competencies for each job family, (b) reviewing prior criterion research predicting each of those competencies, and (c) aggregating findings across multiple studies using meta-analysis (J. Hogan, Davies, and R. Hogan, 2007; Scherbaum, 2005). Based on criterion research studies with outcome data

for at least one of our 62 competencies, we conducted meta-analyses using personality scales from the Hogan Personality Inventory (HPI; R. Hogan & Hogan, 2007) and Hogan Development Survey (HDS; R. Hogan & Hogan, 2009) as predictors.

The HPI is a well-known and extensively validated measure examining "bright-side" personality, and was the first such inventory specifically developed for occupational contexts with working adults. It includes seven scales (see Table 3) that align with the Five-Factor Model (FFM; cf. Digman, 1990; Goldberg, 1992; John, 1990; McCrae & Costa, 1987) of personality. The HDS is also well-known and extensively validated, but examines "dark side" personality characteristics associated with negative performance outcomes in normal working adults. Unlike bright side behaviors on display under normal circumstances, dark side behaviors emerge only under stressful conditions that challenge self-regulation. The HDS includes 11 scales (see Table 4) aligned with Horney's (1950) flawed interpersonal strategies of moving away from people, moving against people, and moving toward people in response to stress. By including both the HPI and HDS in our research, we could identify strong positive and negative predictors of performance outcomes aligned with each of our competencies. Technical manuals referenced above for these instruments provide extensive evidence on their structural psychometrics, reliability, validity, factor structures, and other properties.

Meta-analysis is a statistical method used to average findings across multiple studies examining relationships between similar variables to estimate those relationships across jobs and organizations. Meta-analysis controls for error due to sampling, measurement, range restriction, and potential moderating variables (Smith & Glass, 1977). We followed procedures described by (a) Hunter and Schmidt (1990) for correcting range restriction, (b) Barrick and Mount (1991) for correcting criterion unreliability, and (c) Viswesvaran, Ones, and Schmidt (1996) for the mean inter-rater reliability coefficient of .52. In addition, we reverse coded negatively oriented criterion variables to ensure that validity coefficients were consistently interpreted. Hunter and Schmidt (1990) argue that samples should contribute the same number of correlations to meta-analysis results to avoid bias. Thus, we selected one criterion variable per competency per study, ensuring that each sample contributed only one point estimate per predictor scale.

The synthetic validity results from these meta-analyses provide stable estimates of relationships between HPI and HDS scales and our competencies. With predictive personality dimensions identified for each competency, we began developing mathematical algorithms to score each competency in our model.

Scoring competency algorithms

For many work-related outcomes, combinations of personality variables are more predictive than single personality scales (Ones, Dilchert, Viswesvaran, & Judge, 2007; Tett & Christiansen, 2007). As such, we used mathematical algorithms to combine personality scale scores to maximize prediction of critical competencies for each job family.

Based on the synthetic validation evidence previously described, we selected the most predictive HPI scale, the most predictive HDS scale, and the next most predictive scale from

either the HPI or the HDS to score each competency. Development of these predictive algorithms balanced qualitative, expert judgment-driven theory with quantitative, data-driven results. As such, we used only scales with both theoretical and empirical links in scoring algorithms. As one example, we score our competency Leveraging People Skills as follows:

(Adjustment + (100 - Excitable) + Interpersonal Sensitivity)/3

Using scale-based algorithms provides both predictive validity and interpretability. In addition, algorithms are flexible and compensatory, meaning that candidates will not "fail" a competency as they would with more traditional profile-based approaches by scoring low or high on any given scale. Our scale-based algorithms also use global normative percentile scores instead of raw scores, which unit weights the scales included in each algorithm and further facilitates interpretation worldwide using a common framework.

Finally, we calculate an overall score for each job family by averaging scores across the eight most critical competencies for that job family. Each competency contributes the same weight to the overall score. The overall score provides a general indication of a person's general potential to successfully demonstrate behaviors associated with competencies required for success in the job. As such, the overall score enables users to rank-order individuals in terms of their overall potential to succeed, facilitating top-down identification of candidates whose characteristics most closely align with job demands. However, interested users can still reference scores for each competency to compare candidates with similar overall scores at a more nuanced level.

For ease of use and interpretation, we also categorize individual competency scores and overall scores into six scoring levels. We determined these scoring ranges by running simulations to equally distribute a global working population across six fit levels. By providing these scoring levels, we further facilitate interpretation by allowing users to pair competency and overall scores for a candidate with categorical information about their potential to successfully demonstrate a competency or set of competencies.

Validating algorithms

To validate the competencies in our system, we used a global sample of 25,135 employed adults who completed the HPI and HDS as part of a job application process or employee development effort. This sample included 53.4% males and 29.1% females (17.5% did not indicate their gender) with an average age of 38.82 years (*SD* = 9.20 years). 42.2% of our participants were under 40 years of age, 36.9% were 40 years of age and older, and 20.9% did not indicate their age.

Using this sample, we first computed competency scores for each participant using the algorithms described above. We then computed mean scores and standard deviations for all HPI and HDS scales as well as our 62 competencies. We also used data from this sample to compute correlations between all predictor scales from the HPI and HDS.

Along with the synthetic validity estimates of predictor-outcome relationships previously described, we entered these predictor data into a matrix regression analysis to compute

validity estimates for our competencies. We entered the three HPI and HDS scales included in algorithms to predict each competency and examined the multiple *R* statistic to determine the linear relationship between each competency and its predictors. Once we completed these analyses for all competencies, we averaged results across the top eight competencies for each job family to estimate the overall validity of our approach for that job family.

Results

Tables 5 through 13 provide validity estimates for the eight most critical competencies for each job family and an overall validity estimate for each job family. In each table, we provide the number of studies and participants in archival criterion research studies using the HPI and HDS to predict competency-aligned outcomes. These tables also provide meta-analytic estimates between selected HPI and HDS scales and competency-based performance from our synthetic validation approach. Because the HPI and HDS scales predicting each competency vary, we list these estimates under generic "Scale 1" through "Scale 3" column headings. The last column in each table provides the multiple *R* statistic for each competency and the overall job family validity estimate as an average of results across the top eight competencies.

At the competency level, multiple *R* statistics averaged .30, ranging from .19 (Staying Alert) to .72 (Displaying Confidence). Job family validity estimates also averaged .30, ranging from .25 (Technicians & Specialists, Administrative & Clerical) to .37 (Executives, Sales). In these magnitudes, our validity estimates are comparable to, or beyond those, observed for structured interviews (.18; McDaniel, Whetzel, Schmidt, & Maurer, 1994), biodata (.22; Bliesener, 1996), and assessment centers (.28; Arthur, Day, McNelly, & Edens, 2003) in predicting overall job performance. As such, these results support the use of our competency-based system to identify candidates with characteristics matching critical job behaviors. However, because all jobs include technical, skill, expertise, and other requirements, we recommend that organizations use our system as only one step in a comprehensive applicant screening process. Finally, personality-based selection solutions typically yield no adverse impact, satisfying requirements set by the *Uniform Guidelines* (EEOC, 1978) and precedents set in many courts (Lindemann & Grossman, 1996). Nevertheless, we recommend that companies collect sufficient demographic and applicant flow data to monitor the effectiveness of our solution as an applicant screening device using whatever decision rules they put in place.

Discussion

As competency modeling continues to supplant traditional job analysis for examining job requirements, organizational use of competencies to manage HRM applications will only expand. However, many organizationally-developed competency solutions lack a proper foundation of scientific development and validation, exposing those companies to potential liability. Our system provides an innovative and flexible off-the-shelf solution to this issue with a firm base of scientific development and evidence supporting its validity. Six key features support our system.

First, our job family structure is derived from EEOC job classifications, ensuring a clear organizing structure for a wide range of occupations and providing guidance for categorizing additional jobs. Second, we developed our competency model using a comprehensive process to ensure that it (a) covers the majority of behaviors required for success across organizations, industries, and jobs; (b) maps onto the majority of competencies in existing academic, commercial, and government models; and (c) produces results that are both easy to use and understand. Third, we used archival job analysis evidence collected from thousands of SMEs representing hundreds of jobs across organizations and industry sectors to determine the critical competencies required for success in our nine job families.

Fourth, we used meta-analysis to calculate criterion validity coefficients for each HPI and HDS scale in predicting each competency, and used those results to create synthetic tables showing relationships between each HPI and HDS scale and each competency. These synthetic tables allowed us to identify the most predictive HPI and HDS scales for each competency. Fifth, we used those predictive scales to develop scoring algorithms that maximize the predictive validity and interpretability of results for every competency in our model. We also used competency scores derived from these algorithms to provide an overall job family score for each candidate, describing their likelihood of successfully demonstrating critical competencies required for success in that job family. Finally and most importantly, we combined our sources of predictor and criterion data and ran regression analyses to validate the use of our competency algorithms in predicting aligned performance outcomes in real-world organizations.

The long-term use of competency models in organizations requires solutions that are based in scientific best practice, not just business buzzwords and jargon. By developing a solution that is both predictive and flexible to client needs, we meet these challenges by providing predictive and interpretable information in a customized system tailored to specific job families or a client's own competency framework.

References

Arthur, W., Jr., Day, E. A., McNelly, T. L., & Edens, P. S. (2003). A meta-analysis of the criterion-related validity of assessment center dimensions. *Personnel Psychology, 56*, 125-154.

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*, 1-26.

Bartram, D. (2005). The great eight competencies: A criterion-centric approach to validation. *Journal of Applied Psychology, 90(6)*, 1185-1203.

Bliesener, T. (1996). Methodological moderators in validating biographical data in personnel selection. *Journal of Occupational and Organizational Psychology, 69*, 107-120.

Digman, J. M. (1990). Personality structure: Emergence of the Five Factor model. *Annual Review of Psychology, 41*, 417-440.

Equal Employment Opportunity Commission (1978). Uniform guidelines on employee selection procedures. *Federal Register, 43*, 38,290-38,315.

Foster, J. L., Gaddis, B. H., & Hogan, J. (2012). Personality-based job analysis. In M. A. Wilson, W. Bennett, S. G. Gibson, & G. M. Alliger (Eds.), *The handbook of work analysis: The methods, systems, applications, and science of work measurement in organizations* (pp. 249–266). London: Routledge Academic.

Goldberg, L. R. (1992). The development of markers for the Big Five factor structure. *Psychological Assessment, 4*, 26-42.

Hogan Assessment Systems. (2009). *The Job Evaluation Tool (JET)*. Tulsa, OK: Hogan Press.

Hogan, J., Davies, S., & Hogan, R. (2007). Generalizing personality-based validity evidence. In S. M. McPhail (Ed.), *Alternative validation strategies* (pp. 181-229). San Francisco, CA: Jossey-Bass.

Hogan, R. & Hogan, J. (2007). *Hogan Personality Inventory manual* (3rd ed.). Tulsa, OK: Hogan Assessment Systems.

Hogan, R., & Hogan, J. (2009). *Hogan Development Survey manual* (2nd ed.). Tulsa, OK: Hogan Assessment Systems.

Horney, K. (1950). *Neurosis and human growth*. New York: Norton.

Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis*. Newbury Park, CA: Sage.

John, O. P. (1990). The “Big Five” factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. A. Pervin (Ed.), *Handbook of personality theory and research* (pp. 66-100). New York: Guilford.

Lindemann, B., & Grossman, P. (1996). *Employment discrimination law* (3rd ed.). Washington, DC: American Bar Association.

McCrae, R. R., & Costa P. T. Jr. (1987). Validity of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81-90.

McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. D. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. *Journal of Applied Psychology, 79*, 599-616.

Ones, D. S., Dilchert, S., Viswesvaran, C., & Judge, T. A. (2007). In support of personality assessment in organizational settings. *Personnel Psychology, 60*, 995-1027.

Scherbaum, C. A. (2005). Synthetic validity: Past, present, and future. *Personnel Psychology, 58*, 481-515.

Schippmann, J. S., Ash, R. A., Carr, L., Hesketh, B., Pearlman, K., Battista, M., et al. (2000). The practice of competency modeling. *Personnel Psychology, 53*, 703-740.

Smith, M. L., & Glass, G. V. (1977). Meta-analysis of psychotherapy outcome studies. *American Psychologist, 32*, 752-760.

Tett, R. P., & Chistiansen, N. D. (2007). Personality tests at the crossroads: A response to Morgeson, Campion, Dipboye, Hollenbeck, Murphy, and Schmitt. *Personnel Psychology, 60*, 967-993.

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.

Viswesvaran, C., Ones, D.S., Schmidt, F.L. (1996). Comparative analysis of the reliability of job performance ratings. *Journal of Applied Psychology, 81*, 557-574.

Table 1. Job Families & Definitions

Job Family	Definition
Executives	Employees at top levels of administrative and managerial authority over all resources of the organization. Persons in these occupations are responsible for establishing broad policies, strategic planning, forecasting, and directing work of the organization as a whole.
Managers	Employees responsible for either entry-level supervision or middle management functions within an organization. Individuals in these occupations are responsible for prioritizing work tasks, allocating resources, and directing the day-to-day activities of individual employees and work teams.
Professionals	Employees with no managerial authority, but high status within the organization because of the knowledge and/or skills they possess. From entry-level to senior professionals, these employees are experts in their field and usually have a high level of education.
Technicians & Specialists	Employees with a combination of specialized knowledge and manual skills required to perform specific, vital functions within an organization. These occupations usually require at least two years of college, technical or vocational school, or thorough on-the-job training.
Operations & Trades	Skilled craft workers, semi-skilled operatives, and non-skilled laborers whose job knowledge and skills are primarily gained through on-the-job training and experience. These individuals often perform manual labor, and little prerequisite knowledge and/or skill is required in these occupations.
Sales	Employees responsible for interacting with clients and selling products and/or services to meet their needs. These occupations may require making sales presentations, managing accounts, building relationships, ensuring continued sales with existing customers, and closing new sales to meet goals.
Customer Support	Employees responsible for providing courteous and helpful service to maintain relationships with clients. Individuals in these positions often handle inbound or outbound customer contact to take orders, handle service problems, answer questions, and resolve complaints.
Administrative & Clerical	Employees who direct or coordinate supportive services of an organization. These employees engage in a variety of routine activities such as keeping records, distributing mail, processing information, handling telephone calls, preparing correspondence, and scheduling meetings.
Service & Support	Employees who perform protective (e.g., police, fire fighter) or non-protective (e.g., recreation and amusement, professional and personal service) services for others. These occupations are concerned with areas such as healthcare support, food preparation, personal care, or social services.

Table 2. Competencies & Definitions

Competency	Definition
Accountability	Accepts responsibility for one's actions regardless of outcomes.
Anticipating Problems	Forecasts and detects errors, gaps, and potential flaws.
Attracting Talent	Recruits, rewards, and retains individuals with needed skills and abilities.
Business Insight	Applies business knowledge to achieve organizational goals and objectives.
Caring about People	Displays sensitivity towards the attitudes, feelings, or circumstances of others.
Competing with Others	Strives to exceed others' performance.
Customer Focus	Provides courteous, timely, and helpful service to encourage client loyalty.
Dealing with Ambiguity	Comfortably handles unclear or unpredictable situations.
Decision Making	Uses sound judgment to make timely and effective decisions.
Delegating	Assigns work to others based on tasks, skills, and workloads.
Dependability	Performs work in a reliable, consistent, and timely manner.
Detail Focus	Performs work with care, accuracy, and attention to detail.
Developing People	Provides support, coaching, training, and career direction to others.
Displaying Confidence	Projects poise and self-assurance when completing work tasks.
Driving Change	Champions new methods, systems, and processes to improve performance.
Driving for Results	Accomplishes goals, completes tasks, and achieves results.
Driving Innovation	Stimulates creative ideas and perspectives that add value.
Driving Performance	Provides guidance and feedback to maximize performance of individuals and/or groups.
Driving Strategy	Directs effort to achieve long-term business objectives.
Engagement	Demonstrates loyalty and commitment through enthusiasm and extra effort.
Financial Insight	Applies financial knowledge to achieve organizational goals and objectives.
Flexibility	Changes direction as appropriate based on new ideas, approaches, and strategies.
Handling Stress	Manages pressure without getting upset, moody, or anxious.
Industry Insight	Applies knowledge of industry trends and outlooks to achieve organizational goals and objectives.
Influencing Others	Persuades others to help achieve organizational goals and objectives.
Inspiring Others	Motivates others to accomplish organizational goals.
Integrity	Acts honestly in accordance with moral or ethical principles.
Leading Others	Demonstrates general leadership ability and effectiveness.
Leveraging Diversity	Respects and values individual differences to obtain a desired effect or result.
Leveraging People Skills	Gets along well with others, is tactful, and behaves appropriately in social situations.
Leveraging Work Skills	Applies technology and job-relevant abilities to complete work tasks.
Listening to Others	Listens and restates the ideas and opinions of others to improve mutual understanding.
Managing Conflict	Resolves hostilities and disagreements between others.
Managing Resources	Coordinates people and financial and material capital to maximize efficiency and performance.

Table 2. Competencies & Definitions (Continued)	
Competency	**Definition**
Negotiating	Explores alternatives to reach outcomes acceptable to all parties.
Networking	Builds and maintains a system of strategic business connections.
Organizational Citizenship	Exceeds job requirements to help the organization.
Overcoming Obstacles	Pursues goals and strategies despite discouragement or opposition.
Planning and Organizing	Coordinates and directs activities to help achieve business objectives.
Political Savvy	Recognizes, interprets, and works within the political environment of an organization.
Positive Attitude	Displays a positive disposition towards work.
Presenting to Others	Conveys ideas and information to groups.
Processing Information	Gathers, organizes, and analyzes diverse sources of information.
Professionalism	Acts in accordance with job-related values, principles, and standards.
Quality Focus	Strives to meet quality standards and produce quality work products.
Relationship Building	Develops collaborative relationships to facilitate current and future objectives.
Rule Compliance	Adheres to directions, policies, and/or legal guidelines.
Safety Focus	Attends to precautions and proper procedures to guard against work-related accidents and injuries.
Sales Focus	Generates revenue by promoting products and services to others.
Self Development	Actively acquires new knowledge and skills to remain current with and/or grow beyond job requirements.
Self-Management	Demonstrates appropriate motivation, attitude, and self-control.
Setting Goals	Identifies short-term objectives and steps to achieve them.
Solving Problems	Identifies solutions given available information.
Staying Alert	Remains focused when performing monotonous tasks.
Taking Initiative	Takes action without needing direction from others.
Taking Smart Risks	Evaluates tradeoffs between potential costs and benefits and acts accordingly.
Team Building	Assembles productive groups based upon required skills, goals and tasks.
Teamwork	Collaborates with others to achieve goals.
Time Management	Plans and prioritizes work to maximize efficiency and minimize downtime.
Verbal Communication	Expresses ideas and opinions effectively in spoken conversations.
Working Hard	Consistently strives to complete tasks and assignments at work.
Written Communication	Expresses ideas and opinions effectively in writing.

Table 3. Hogan Personality Inventory (HPI) Scales & Definitions

HPI Scale	Measures the degree to which a person seems…
Adjustment	Calm and self-accepting or self-critical and tense
Ambition	Socially self-confident, leader-like, competitive, and energetic
Sociability	Comfortable interacting with others
Interpersonal Sensitivity	Perceptive, tactful, and socially sensitive
Prudence	Conscientious, conforming, and dependable
Inquisitive	Bright, creative, and interested in intellectual matters
Learning Approach	Comfortable with academic activities and education for its own sake

Table 4. Hogan Development Survey (HDS) Scales & Definitions

HDS Scale	Measures the degree to which a person seems…
Excitable	Moody and inconsistent, being enthusiastic about new persons or projects and then becoming disappointed with them
Skeptical	Cynical, distrustful, sensitive to criticism, and questioning others' intentions
Cautious	Resistant to change and reluctant to take chances for fear of being criticized
Reserved	Socially withdrawn and lacking interest in or awareness of the feelings of others
Leisurely	Autonomous, indifferent to others' requests, and irritable when they persist
Bold	Unusually self-confident and unwilling to admit mistakes, listen to advice, or learn from experience
Mischievous	To enjoy taking risks and testing the limits
Colorful	Expressive, dramatic, and wanting to be noticed
Imaginative	To act and think in creative and sometimes unusual ways
Diligent	Careful, precise, and critical of the performance of others
Dutiful	Eager to please, reliant on others, and reluctant to take independent action

Table 5. Synthetic Validity Evidence for Executives Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Political Savvy	4	599	2	115	.19	.48	.17	.50
Decision Making	28	3474	6	379	.10	.25	.21	.28
Leading Others	30	3339	6	404	.41	.25	.21	.45
Presenting to Others	7	777	3	466	.29	.20	.39	.40
Inspiring Others	21	1845	6	478	.25	.13	.14	.25
Driving Change	8	789	3	488	.26	.25	.27	.33
Influencing Others	12	1573	4	271	.32	.30	.21	.37
Driving Strategy	11	1491	6	661	.38	.09	.15	.39
AVERAGE VALIDITY	—	—	—	—	—	—	—	.37

Table 6. Synthetic Validity Evidence for Managers Job Family

Competency	HPI *K*	HPI *N*	*HDS K*	*HDS N*	Scale 1	Scale 2	Scale 3	Validity
Managing Conflict	18	1858	3	209	.21	.11	.12	.22
Managing Resources	14	1416	7	706	.23	.14	.12	.26
Driving Performance	14	1189	3	467	.28	.18	.26	.33
Team Building	12	1378	5	807	.15	.35	.16	.35
Leveraging People Skills	63	7047	4	302	.24	.18	.38	.39
Time Management	9	633	4	228	.14	.22	.14	.27
Solving Problems	37	3468	5	267	.14	.21	.26	.30
Teamwork	65	7310	5	339	.16	.25	.30	.38
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.31**

Table 7. Synthetic Validity Evidence for Professionals Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Self Development	45	4284	11	1178	.14	.21	.10	.22
Accountability	43	4422	7	682	.17	.16	.10	.20
Decision Making	28	3474	6	379	.10	.25	.21	.28
Solving Problems	37	3468	5	267	.14	.21	.26	.30
Professionalism	41	4490	5	364	.23	.18	.26	.28
Overcoming Obstacles	27	2505	5	636	.18	.20	.21	.30
Dealing with Ambiguity	12	1001	2	132	.18	.19	.23	.32
Displaying Confidence	18	2134	2	118	.42	.57	.42	.72
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.33**

Table 8. Synthetic Validity Evidence for Technicians & Specialists Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Detail Focus	40	3137	8	543	.23	.13	.19	.26
Safety Focus	29	2653	6	611	.19	.22	.12	.25
Dependability	54	4980	6	455	.18	.24	.26	.32
Quality Focus	25	2578	5	546	.15	.19	.09	.21
Rule Compliance	46	4131	6	675	.23	.11	.05	.23
Flexibility	52	5391	6	719	.16	.19	.19	.24
Anticipating Problems	10	897	2	373	.14	.14	.22	.25
Driving Innovation	16	1570	3	386	.25	.10	.19	.25
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.25**

Table 9. Synthetic Validity Evidence for Operations & Trades Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Working Hard	35	3325	4	310	.14	.19	.18	.25
Integrity	36	3774	8	395	.25	.28	.18	.33
Time Management	9	633	4	228	.14	.22	.14	.27
Dependability	54	4980	6	455	.18	.24	.26	.32
Professionalism	41	4490	5	364	.23	.18	.26	.28
Leveraging Work Skills	20	1167	3	470	.25	.10	.13	.27
Quality Focus	25	2578	5	546	.15	.19	.09	.21
Safety Focus	29	2653	6	611	.19	.22	.12	.25
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.27**

Table 10. Synthetic Validity Evidence for Sales Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Driving for Results	68	6893	8	584	.22	.16	.13	.27
Displaying Confidence	18	2134	2	118	.42	.57	.42	.72
Verbal Communication	64	6171	11	1004	.11	.17	.25	.27
Flexibility	52	5391	6	719	.16	.19	.19	.24
Sales Focus	23	2405	4	314	.33	.07	.16	.38
Setting Goals	24	2027	5	523	.23	.09	.23	.27
Presenting to Others	7	777	3	466	.29	.20	.39	.40
Negotiating	7	737	5	266	.28	.31	.22	.39
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.37**

Table 11. Synthetic Validity Evidence for Customer Support Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Listening to Others	31	3109	4	184	.14	.30	.18	.32
Customer Focus	55	5505	7	741	.18	.29	.24	.33
Professionalism	41	4490	5	364	.23	.18	.26	.28
Overcoming Obstacles	27	2505	5	636	.18	.20	.21	.30
Leveraging People Skills	63	7047	4	302	.24	.18	.38	.39
Positive Attitude	62	6850	8	512	.28	.22	.16	.32
Handling Stress	74	7854	12	1043	.29	.22	.03	.31
Relationship Building	31	3326	6	742	.15	.17	.19	.23
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.31**

Table 12. Synthetic Validity Evidence for Administrative & Clerical Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Integrity	36	3774	8	395	.25	.28	.18	.33
Staying Alert	6	421	3	211	.10	.00	.17	.19
Rule Compliance	46	4131	6	675	.23	.11	.05	.23
Self-Management	9	738	2	363	.21	.06	.23	.26
Leveraging Work Skills	20	1167	3	470	.25	.10	.13	.27
Organizational Citizenship	41	3326	6	683	.15	.20	.19	.26
Detail Focus	40	3137	8	543	.23	.13	.19	.26
Planning and Organizing	44	4966	5	328	.19	.13	.15	.23
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.25**

Table 13. Synthetic Validity Evidence for Service & Support Job Family

Competency	HPI K	HPI N	HDS K	HDS N	Scale 1	Scale 2	Scale 3	Validity
Integrity	36	3774	8	395	.25	.28	.18	.33
Rule Compliance	46	4131	6	675	.23	.11	.05	.23
Customer Focus	55	5505	7	741	.18	.29	.24	.33
Professionalism	41	4490	5	364	.23	.18	.26	.28
Accountability	43	4422	7	682	.17	.16	.10	.20
Positive Attitude	62	6850	8	512	.28	.22	.16	.32
Solving Problems	37	3468	5	267	.14	.21	.26	.30
Managing Conflict	18	1858	3	209	.21	.11	.12	.22
AVERAGE VALIDITY	—	—	—	—	—	—	—	**.28**