



ROI Whitepaper

# Manufacturing Industry Summary

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## Key Insights

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- Hogan demonstrates how competencies like [Speed and Innovation](#) and [Focuses on Results](#) drive success across the manufacturing industry.
- More than 30 [Validity Generalization](#) studies show Hogan’s breadth of industry experience, from [Maintenance Workers](#) to [Leaders](#).
- Over 20 [ROI](#) studies demonstrate the impact Hogan has on [safer behavior](#), improved [performance](#), and better [attendance](#).

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## About Hogan

Hogan has decades of experience providing cutting-edge assessment and consulting solutions. Our assessments can be used for a variety of talent management initiatives, from pre-hire selection to executive-level development. Our tools:

- Predict job performance – hire better people by measuring basic employability, work style, safety consciousness, and organizational fit.
- Evaluate career derailers – identify and mitigate performance risks that can degrade leadership success, erode relationships, and damage professional reputation.
- Identify potential – find and develop your organization’s next generation of top talent.
- Develop leaders – leverage the strategic self-awareness gained through Hogan’s assessment process with executive development and coaching.
- Pair with 360° data and other performance indices – reveal the underlying characteristics and values that drive the behaviors identified in the 360° process. In progressive development programs, 360s provide the what; Hogan provides the why.

## Our Tools

Hogan’s assessment offerings measure normal personality characteristics, career derailment risks, core value drivers, and cognitive style. Hogan’s selection and development solutions are driven by a targeted mix of the following assessments:

- HPI – the Hogan Personality Inventory measures normal personality characteristics necessary for job fit, effective relationships, and career success.
- HDS – the Hogan Development Survey is the industry standard for measuring career-derailing personality characteristics.
- MVPI – the Motives, Values, Preferences Inventory reveals a person’s core values, goals, and interests, which impact organizational fit and indicate environments in which individuals will be motivated and satisfied.
- HBRI – the Hogan Business Reasoning Inventory describes a person’s ability to evaluate sets of data, make decisions, solve problems, and avoid repeating past mistakes.

## The Hogan Archive

Hogan maintains the industry’s largest and most well-developed archive of original research, affording access to hundreds of real-world validity studies demonstrating the extent to which our assessments predict performance.

- Our research department, composed of masters- and doctorate-level I-O psychologists, regularly conducts return-on-investment (ROI) studies establishing the impact of personality-based selection and development activities on real-world performance outcomes.
- The Hogan archive contains case studies demonstrating ROI across virtually every industry for nearly all job titles listed in the U.S. Department of Labor’s Occupational Information Network (O\*NET).
- Performance data are available for more than 140 jobs ranging from clerk to CEO, including manufacturing-related jobs such as Machine Operators, Engineers, and Inspectors.

## Industry Background

Within the Hogan archive, we have categorized companies that share a common purpose (or similar business activities) into broad categories that allow us to summarize our assessment experience within a particular industry.

The Manufacturing industry represents companies who are engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. Although Hogan's work in the Manufacturing industry focuses heavily in the operations and trades job family (e.g., factory and plant workers), our breadth in the field extends to management and specialized job types such as quality control engineers and instrumentation technicians.

## Hogan Job Families

Hogan's archive contains over 1,000 research studies with over 90 studies focused on the Manufacturing industry. We have categorized occupations that share common underlying characteristics into broad categories that allow us to examine the utility of our assessments in measuring these shared competencies. Hogan classified the Manufacturing jobs into one of our seven job families, as described in the table below.

Hogan Job Family	Definition
Managers & Executives	Employees assigned to positions of administrative or managerial authority over the human, physical, and financial resources of the organization.
Professionals	Employees with little legitimate authority, but high status within the organization because of the knowledge and/or skills they possess.
Technicians & Specialists	Employees who rely on the application of highly specific knowledge in skilled manipulation (e.g., operation, repair, cleaning, and/or preparation) of specialized technology, tools, and/or machinery.
Sales & Customer Support	Employees who use appropriate interpersonal style and communication techniques to establish relationships, sell products or services that fulfill customers' needs, and provide courteous and helpful service to customers after the sale.
Operations & Trades	Employees who are craft workers (skilled), operatives (semi-skilled), and laborers (unskilled) whose job knowledge and skills are primarily gained through on-the-job training and experience; little prerequisite knowledge or skill is needed.
Service & Support	Employees that perform protective services for individuals and communities (e.g., police, fire fighters, guards) and non-protective services for individuals that require little to no formal training but a high degree of personal interaction (e.g., food service, recreation).
Administrative & Clerical	Employees who plan, direct, or coordinate supportive services of an organization. These employees engage in variety of non-manual activities (e.g., recordkeeping, mail distribution, handling information requests, telephone operator/receptionist).

## Competency Studies

Organizations often use competency models to provide a common framework for aligning human capital initiatives such as recruitment, selection, training, and promotion. Hogan offers a variety of competency-related solutions that allow organizations to incorporate personality assessments into these programs.

Each approach begins by mapping client competencies to those from the Hogan Competency Model (HCM). We then rely on synthetic and content validity evidence to align assessment scales from the HPI, HDS, and MVPI with each competency. This helps us determine which personality characteristics drive performance related to the specific competency. As seen in the following table, several Manufacturing clients have used our tools to predict key competencies specific to their organization:

Job Title (Study #)	Competency	Key Scales
Leaders (477)	Visionary	HPI Ambition, HDS Imaginative, MVPI Power
Leaders (635)	Sets High Expectations	HPI Ambition, HDS Cautious, MVPI Power
Executives (655)	Strategic Direction	HPI Ambition, HDS Skeptical, HDS Colorful
Team Leaders (818)	Speed and Innovation	HPI Inquisitive, HDS Cautious, HDS Skeptical
Leaders (819)	Interpersonal Skills	HPI Interpersonal Sensitivity, HDS Reserved, MVPI Affiliation
Leaders (821)	Strategic Perspective	HPI Ambition, HDS Skeptical, MVPI Power
Leaders (822)	Learning Aptitude	HPI Adjustment, HPI Learning Approach
Leaders (828)	Information Analysis	HPI Learning Approach, HDS Imaginative, MVPI Science
Leaders (855)	Accountability	HPI Adjustment, HPI Prudence
Employees (952)	Focuses on Results	HPI Prudence, HDS Leisurely, MVPI Power
Managers (1042)	Creativity	HPI Inquisitive, HDS Imaginative, MVPI Aesthetic

## Validity Generalization Studies

Given the vast number of local validation studies stored in the Hogan archive, we can use these criterion-related validity studies as the foundation for generalizing validity. Validity generalization methods are supported by a large body of empirical literature. We use the following three methods in our research design:

- Meta-Analytic Validity Generalization – which uses meta-analytic procedures for determining the relationship between the Hogan scales and job performance at a broad, job family level.
- Transportability of Validity – which involves using validity evidence from one or more criterion-related validity studies found to be similar to the target job under study.
- Synthetic Validity – which establishes the validity of a set of measures for predicting specific job components (i.e., competencies) considered important for a job.

As seen in the following table, multiple clients have used our validity generalization approach to predict success across a variety of Manufacturing jobs.

Job Type	Job Title (Study #)	
Managers & Executives	Sales and Marketing Managers (1057) Managers (372, 1056) Leaders (985, 811) Plant Managers (441, 844) Executive Level Jobs (626) Manager of Managers (599.3)	General Sales Managers (599.2) First Line Managers (599.1) Executive Level Sales (599) APRA Managers (369) Project Managers (212.1) Foreman (212)
Operations & Trades	Manufacturing Workers (1007) Production Operators (816) Inspectors (801) Electro Mechanical Technicians (482) General Employees (396) Manufacturing Technicians (370.1)	Fixers (370) Short Haul Drivers (212.6) Long Haul Drivers (212.5) Laborers (212.4) Equipment Managers (212.3)
Professionals	Engineers (467)	Quality Control Specialists (212.2)
Sales & Customer Support	Field Sales Representatives (887) Account Managers (886) Territory Sales Managers (691)	Technical Expert Sales (599.4) Sales Associates (212.7)
Technicians & Specialists	Maintenance Mechanics/Instrumentation Electricians (911)	

## ROI Studies

Hogan conducts criterion-related validity studies using a three-step process: (1) collecting Hogan assessment data, (2) collecting job performance data (i.e., supervisor performance ratings and objective performance metrics), and (3) conducting analyses examining the relationships between the assessment and performance data.

When conducting criterion-related validity research, we find it useful to demonstrate what a selection system based on the Hogan profile means in practical terms, or ROI. The following case studies were excerpted from the Hogan archive to show how using our assessments translates into measurable results when companies hire candidates into Manufacturing jobs. More detailed information for each study can be found in the job title hyperlinks below.

## Managers & Executives

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- [High Potential Leaders](#) (851) – A global aircraft manufacturer used the HPI and HDS to understand Leader performance.
  - Hogan found that Leaders who are resilient (HPI Adjustment), act decisive (HDS Cautious), and appear task-focused (HDS Imaginative) are the best performers.
  - Candidates who fit the Hogan profile are more likely to have engaged employees and receive larger bonuses.
- [Leaders](#) (800) – A large insulation manufacturer used the HPI to understand their future Leaders.
  - Hogan found that Leaders who are driven (HPI Ambition) and achievement-oriented (HPI Learning Approach) are the strongest performers.
  - Candidates who fit the Hogan profile are more likely to become High Potential Leaders than those who do not fit the profile.
- [Senior Professionals/Executives](#) (745) – A global building material manufacturer used the HPI and the HBRI to evaluate Senior Professionals and Executives.
  - Hogan found that the most successful Senior Professionals and Executives are goal oriented (HPI Ambition), continuous learners (HPI Learning Approach), and have strong business reasoning skills (HBRI).
  - Candidates who fit the Hogan profile had higher annual performance ratings compared to those not fitting the profile.
- [Foundry Supervisors](#) (538) – A national pipe manufacturer used the HPI to predict Foundry Supervisor success.
  - Hogan found that strong performing Foundry Supervisors remain calm under pressure (HPI Adjustment), deliver results (HPI Ambition), build and maintain relationships (HPI Interpersonal Sensitivity), and are dependable and detail-oriented (HPI Prudence).
  - Candidates who fit the Hogan profile were nearly twice as likely to be rated as a high performer compared to those that did not fit the profile.

## Operations and Trades

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- [Sewing Machine Operators \(872\)](#) – A consumer goods manufacturer used the HPI, HDS, and MVPI to hire Sewing Machine Operators.
  - Hogan showed that successful Sewing Machine Operators maintain composure under stress (HPI Adjustment), are detail-oriented (HPI Prudence), and look for training opportunities (HPI Learning Approach).
  - Candidates who fit the Hogan profile produced output at a greater rate and were four times more likely to be rated as strong performer compared to those not fitting the profile.
- [Pipe Manufacturing Workers \(136\)](#) – A national pipe manufacturer used the HPI to select Pipe Manufacturing Workers.
  - Hogan found that the best Pipe Manufacturing Workers tend to be calm under pressure (HPI Adjustment), results-oriented (HPI Ambition), and rule-compliant (HPI Prudence).
  - Candidates meeting the Hogan profile were nearly three times as likely to be rated as a high performer than those not meeting the profile.

## Technicians and Specialists

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- [Production Assemblers \(865\)](#) – An electrical supply manufacturer used the HPI to hire Production Assemblers.
  - Hogan found that successful Production Assemblers are conscientious, detail-oriented, dependable (HPI Prudence), and calm and self-assured (HPI Adjustment).
  - Candidates who met the Hogan profile were 2.5 times more likely to display safe behaviors (e.g., follow rules) than those who did not meet the profile.
- [Technicians \(595\)](#) – A global aerospace manufacturer used the HPI and MVPI to hire Technicians.
  - Hogan found that strong performing Technicians are conscientious (HPI Prudence), interested in building job-related knowledge (HPI Learning Approach), enjoy troubleshooting problems (HPI Inquisitive) and value data-driven decision making (MVPI Science).
  - Candidates that met the Hogan profile were over three times more likely to be rated as a high performer than those not meeting the profile.
- [Assemblers \(594\)](#) – A technology supplier for the defense and space industry used the HPI and MVPI to select Assemblers.
  - Hogan found that the best Assemblers remain calm under pressures (HPI Adjustment), are concerned about building job-related knowledge (HPI Learning Approach), and value concrete, measureable data (MVPI Science).
  - Candidates who met the Hogan profile were nearly twice as likely to be rated as a better fit with the company's culture than those who did not meet the profile.

- [Operators/Test Engineers](#) (442) – A lighting product manufacturer used the HPI to hire Operators and Test Engineers.
  - Hogan found that strong performing Operators and Test Engineers are results-oriented (HPI Ambition), strong communicators (HPI Interpersonal Sensitivity), and stay organized (HPI Prudence).
  - Candidates who fit the Hogan profile were 2.5 times more likely to be rated as a high performer compared to those not fitting the profile.
- [Installers/Assemblers](#) (69) – A Midwestern manufacturer used the HPI to select Installers and Assemblers.
  - Hogan found that more successful Installers and Assemblers are calm and composed (HPI Adjustment), and rule-compliant (HPI Prudence).
  - Candidates who fit the Hogan profile had better work attendance histories, fewer compensation claims, and stayed on the job longer than those who did not fit the profile.

## Additional Validity Studies

The Hogan Archive contains several additional criterion-related validity studies within the Manufacturing industry. These jobs range from factory workers to managers. This breadth of job titles demonstrates Hogan’s history and experience within the Manufacturing industry.

Job Title (Study #)	Job Family
Managers/Directors (389)	Managers & Executives
Entry Level Manufacturing Job (689)	Operations & Trades
Entry-Level Factory Workers (330)	Operations & Trades
Entry-Level Plant Workers (251)	Operations & Trades
Coating Employees (244.1)	Operations & Trades
Surfacing Employees (244)	Operations & Trades
Machine Operators (79)	Operations & Trades
Machine Operators (65)	Operations & Trades
High Pressure Cleaners (26)	Operations & Trades
Entry-Level Employees (1)	Operations & Trades
Technical Employees (850)	Technicians & Specialists
Manufacturing Technicians (113)	Technicians & Specialists