C ulturally
A dapted
L eadership for
I nspired
B usiness
E xcellence and
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CALIBER Leadership Assessment Scale
A Psychometric Report

A Psychometric Development of an Evidence-Based Closed-Loop Leadership Assessment Scale for 70 National Cultures and Its Use in the Development of Leadership, Organizational Performance, and Business Results

This paper was published and presented at two conferences: The 5th European Conference on Research Methods for Business and Management Studies 2006, Trinity College, Dublin, Ireland, and the HR.com Employers of Excellence National Conference 2007, Las Vegas, Nevada, U.S.A.

The CALIBER Psychometric Report

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Abstract

This paper presents the psychometric research on the Culturally Adapted Leadership for Inspired Business Excellence and Results (CALIBER) leadership assessment scale, a seventy-four-item questionnaire designed to provide a quantitative measure of cross cultural leadership, organizational performance, and business results across 70 national cultures. Unlike other leadership assessments that evaluate leadership in isolation and as a "one size fits all" phenomenon, the CALIBER assessment measures leadership as a culture-specific construct directly in relation to organizational performance and business results. The CALIBER leadership assessment scale is based on extensive empirical research in Fortune 100 companies and synthesis of the best ideas extant in the leadership and organization literature.

The systematic psychometric research on the CALIBER leadership assessment scale showed that its ten leadership dimensions, four organizational performance dimensions, and six business results dimensions possessed high internal and test-retest reliability. The results of factor analyses lent substantial support to the constructs of leadership, organizational performance, and business results. The research also confirmed that the CALIBER leadership assessment scale performs very well on construct, content, and criterion-based validity.

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The CALIBER Leadership Model and Assessment Scale

A Psychometric Development of an Evidence-Based Closed-Loop Leadership Assessment Tool for 70 National Cultures and Its Use in the Development of Leadership, Organizational Performance, and Business Results

Instrument Development

The CALIBER Leadership Assessment Scale is the third major version of Lakhani's Cross Cultural Leadership Inventory (CCLI) (Lakhani, 2005, 2006), based on five years of work in fulfillment of his doctoral dissertation and continued subsequent research. Both CCLI and CALIBER leadership assessment scales operationalize the constructs of leadership, organizational performance, and business results based on empirical research in Fortune 100 companies and synthesis of best ideas from the preeminent leadership theories extant in management literature.

Table 1 maps the CALIBER Leadership Model in relation to the terrain of prominent leadership theories and models. In the CALIBER model, leadership is presented as a culture-specific interlocking process for maximizing the strengths of the dynamic human enterprises through a positive influence of those involved. Unlike other leadership assessments that evaluate leadership in isolation and as a "one size fits all" phenomenon, the CALIBER assessment measures leadership as a culture-specific construct directly in relation to organizational performance and business results. The CALIBER model is designed to do for leadership what Six Sigma did for quality management: provide clear measurability, controllability, and predictability.

In the CALIBER Leadership Assessment Scale, leadership is measured as a culture-specific aggregation of ten practices: namely, communication leadership, competent leadership, reinforcement leadership, empowerment leadership, visionary leadership, authentic leadership, steward leadership (stewardship), creative leadership, confident leadership, and cultural leadership. Since leadership is a two-way process between leaders and followers, the leadership score is dependent on the cultural background of the followers. As such, the CALIBER Leadership Assessment provides a culture-specific view of a leader's capacities and provides action-oriented guidance for the development of leadership practices.

In the CALIBER Leadership Assessment Scale, organizational performance is measured as an aggregation of four dimensions: namely, resource acquisition and optimization, process management, product development, and reinforcement system. The construct of business results is based on the Malcolm Baldrige criteria and is assessed as an aggregation of six factors: namely, financial performance, employee satisfaction, quality of goods, customer satisfaction, partner relationship, and social responsibility.

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The CALIBER Leadership Assessment Scale provides specific linkages between leadership and organizational performance and business results across 70 national cultures, allowing leaders to come away with specific, intelligent developmental actions they need to undertake to make measurable differences in the performance of their organizations and results of their business.

Leadership Dimension	CALIBER Lakhani (2005)	Zenger and Folkman (2002); Ulrich and Smallwood (1999)	Collins (2002)	Block (2001)	Bennis (1988); Sashkin and Rosenbach (2000)	Goleman (2000)	Conger and Kanungo (1998)	House (1995); McClelland and Boyatzis (1982)	Kotter and Heskett (1992)	Jaques (1986); Streufert (1991)	Bass (1985); Kouzes and Posner (1987)
1. Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Authenticity	✓	✓	✓	✓	✓	✓					✓
3. Stewardship	✓			✓	✓	✓	✓				
4. Creativity	✓	✓	✓		✓		✓	✓	✓	✓	✓
5. Confidence	✓	✓			✓	✓		✓			✓
6. Reinforcement	✓	✓	✓	✓	✓	✓					✓
7. Empowerment	✓	✓		✓	✓	✓		✓	✓		✓
8. Vision	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9. Competence	✓	✓	✓		✓					✓	
10a. Organizational Culture	✓	✓			✓				✓		✓
10b. National Culture	✓										
Output											
Organizational Performance	✓										
Business Results	✓	✓									

Table 1. CALIBER leadership compared to extant models and theories

The CALIBER research found that leaders are more effective at fostering organizational performance and business results when they adopt a contingent style that blends transactional leadership and transformational leadership dependent on the national culture of the followers. Specifically, the study uncovered a culture-specific amalgamation of ten leadership factors: namely, communication leadership, cultural leadership, reinforcement leadership, empowerment leadership, stewardship, creative leadership, visionary leadership, competent leadership, authentic leadership, and confident leadership, is an effective approach for cross cultural leaders of performing organizations and results-oriented companies.

The CALIBER model maps leadership dimensions to the national culture typology created for 70 national cultures by Hofstede (2002). This mapping is based on the five attributes: namely, power distance, masculinity/femininity, uncertainty avoidance, individualism/collectivism, and long-term/short-term orientation. The CALIBER research confirmed that the preferences for leadership practices were associated with national cultures. There was a significant relationship between the leadership dimensions in the CALIBER scale and Hoftede's typology scores.

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The CALIBER research resulted in a fine-grained and comprehensive empirical model and blueprint of the relational linkages across leadership, organizational performance, and business results for each of the 70 countries included in the research study.

Overall, the CALIBER assessment has been validated through extensive set of checks for content validity, construct validity, and criterion-based validity. The CALIBER leadership assessment is the first and the only evidence-based assessment tool to link the 10 leadership practices directly to organizational performance and business results. It provides the blueprint for accelerating the growth of managers and leaders across 70 national cultures.

The CALIBER Psychometrics

Item Development

As opposed to the conventional approach of starting with an item bank for treatment through factor analysis, the process used in developing the CALIBER scales was to pen the scales such that they fit with the specific scales created from the synthesis of the best ideas from the existing theories. These items were taken through several cycles of revisions based on expert feedback and results of statistical analyses.

Data Sets

The CALIBER research was completed in three phases. First, it used the knowledge workers (*N* = 206) from across three countries in a large multinational high-technology Fortune 100 company headquartered in the United States. These results were validated statistically and triangulated qualitatively. Next, the research was repeated with a set of participants (*N = 284*) from across 46 countries. These results supported all the findings from the previous phase and helped fine tune the scale. The final phase involved a set of participants (*N = 154 and still growing*) from across 14 countries. The results from this phase reconfirmed the findings from the previous two phases.

TLP Item-Scale Reliability

The Cronbach alphas lent solid support to a reliable scale. Table 2 presents the reliability results for the leadership dimensions in the latest version of the CALIBER scale. Table 3 presents the reliability results for the organizational performance dimensions in the latest version of the CALIBER scale. Table 4 presents the reliability results for the business results dimensions in the latest version of the CALIBER scale.

Factor	Cronbach Alpha
Competent Leadership	.888
Reinforcement Leadership	.851
Communication Leadership	.906
Authentic Leadership	.899
Stewardship	.877
Creative Leadership	.892
Confident Leadership	.784
Empowerment Leadership	.831
Visionary Leadership	.844
Cultural Leadership	.903

Table 2. Cronbach alphas for leadership dimensions in the CALIBER scale

Factor	Cronbach Alpha
Resource Optimization	.698
Process Management	.701
Product Development	.667
Reinforcement System	.723

Table 3. Cronbach alphas for organizational performance dimensions in the CALIBER scale

Factor	Cronbach Alpha
Financial Performance	.729
Employee Satisfaction	.701
Supplier/Partner Relationship	.699
Customer Satisfaction	.734
Quality of Products/Services	.721
Social Responsibility	.792

Table 4. Cronbach alphas for business results dimensions in the CALIBER scale

The Cronbach alpha results varied sizably across the dimensions but were adequate enough to claim solid reliability for all of the 16 scales measured by the CALIBER assessment.

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Test-Retest Reliability

A small subset of individuals (N = 8) was identified and administered the CALIBER assessment twice over a span of seven months with the specific intent of measuring test-retest reliability. Significant correlations ($p < 0.05$) were found between the same scales across the two scale administrations. Table 5 summarizes these correlation results.

Factor	Correlation
Competent Leadership	.491
Reinforcement Leadership	.502
Communication Leadership	.509
Authentic Leadership	.478
Stewardship	.512
Creative Leadership	.532
Confident Leadership	.487
Empowerment Leadership	.499
Visionary Leadership	.512
Cultural Leadership	.502
Resource Optimization	.469
Process Management	.498
Product Development	.503
Reinforcement System	.487
Financial Performance	.516
Employee Satisfaction	.521
Supplier/Partner Relationship	.514
Customer Satisfaction	.501
Quality of Products/Services	.524
Social Responsibility	,532

Table 5. Test-Retest correlations for the CALIBER scales

Factor Analysis Results.

The factor analysis results from the latest data set (*N = 154*) provided adequate construct support for the CALIBER scale. There was no significant difference found across the scores for genders or age groups, job functions, or educational levels of the participants (which also reconfirmed that the scale is unbiased for a wide range of demographics) so the data set was treated as whole and not subdivided.

Factors 1-10. The items allotted to each of the dimensions of leadership loaded highly in factor analysis, indicating the adequacy of the 10-factor model for leadership. This solution was also reconfirmed using Varimax rotation with an Eigenset value >1, where each of the 10 factors made contribution to the overall variance in leadership.

Factors 11-14. The items allotted to each of the dimensions of organizational performance loaded highly in factor analysis, indicating the adequacy of the 4-factor model for organizational performance. This solution was also reconfirmed using Varimax rotation with an Eigenset value >1, where each of the 4 factors made contribution to the overall variance in organizational performance.

Factors 15-20. The items allotted to each of the dimensions of business results loaded highly in factor analysis, indicating the adequacy of the 6-factor model for business results. This solution was also reconfirmed using Varimax rotation with an Eigenset value >1, where each of the 6 factors made contribution to the overall variance in business results.

The above results lend strong support to the construct validity of each of the scales as well as to that for the overall CALIBER assessment.

Inter-factor Correlations

Table 6 shows the significant correlations ($p < 0.01$, two-tailed) between the leadership and organizational performance dimensions, lending strong support to the internal validity of the scales and the overall CALIBER assessment.

Factor	Resource Optimization	Process Management	Product Development	Reinforcement System
Competent Leadership	.560	.825	.743	.723
Reinforcement Leadership	.524	.778	.704	.844
Communication Leadership	.613	.869	.789	.801
Authentic Leadership	.511	.794	.630	.734
Stewardship	.505	.735	.691	.722
Creative Leadership	.571	.829	.734	.780
Confident Leadership	.584	.730	.716	.805
Empowerment Leadership	.538	.786	.699	.727
Visionary Leadership	.603	.815	.741	.809
Cultural Leadership	.568	.791	.722	.763

Table 6. Inter-factor correlations between leadership and organizational performance dimensions

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The Use of the CALIBER Leadership Assessment for Leadership, Organizational, and Business Development

The CALIBER leadership assessment is the only evidence-based assessment to link leadership practices directly to organizational performance and business results. It provides the blueprint for accelerating the growth of managers and leaders across 70 nations.

What is this?

The CALIBER tool is an effective, reliable, and validated assessment designed to measure leadership capacity directly in relation to organizational performance and business results. It allows leaders to gain a thorough understanding of their current practices and provides them with specific result-oriented feedback to accelerate their development and growth with respect to organizational performance and business results.

Why do this?

The CALIBER assessment represents the latest and most innovative advances in the field of leadership study. It is widely assumed that leadership plays a pivotal role in guiding organizational performance and business results, but there is no assessment in the industry that quantitatively links the construct of leadership to organizational performance and business results across 70 national cultures. The CALIBER assessment fills this void by aligning leadership with organizational performance and business results.

How does it work?

Using the CALIBER assessment - 1) the leader completes a self-rating, and 2) manager/supervisor, peers, direct reports, and other observers rate the leader.

How is it done?

The survey takes 20 minutes to complete. Assessment information is completely confidential. It is easy to use and conveniently available 24/7 at this secure Internet site: *http://www.magnaleadership.com/ccli/survey/*

More information about the CALIBER assessment can be found at this secure Internet site:*http://magnaleadership.com/materials/CALIBER_Leadership_Development_Sample _Report.pdf*.

Conclusion

This paper reports on the development and use of the CALIBER Leadership Assessment Scale. CALIBER assessment is grounded in a five-year research study to develop an evidence-based model of the relational linkages among leadership, organizational performance, and business results across 70 national cultures around the world.

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