

# Stakeholder Tracking and Analysis: The RepTrak<sup>®</sup> System for Measuring Corporate Reputation

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## ABSTRACT

'Reputation' is increasingly recognized for its influence in creating stakeholder support and engagement with companies. Both researchers and practitioners would therefore benefit from having a rigorous instrument to measure reputations and the ability to develop predictive modeling of reputation's impact on stakeholder outcomes. The RepTrak<sup>®</sup> System evolved from studies conducted by Reputation Institute since 2000 to provide a systematic tool for tracking and analyzing stakeholder perceptions that could help companies better manage their reputation and its effects on stakeholder behaviors. Prior research has demonstrated the validity of the RepTrak<sup>®</sup> Pulse as a short form measure of 'corporate reputation'. This study reports empirical tests developed to validate the seven dimensions that the RepTrak<sup>®</sup> System uses to predict corporate reputation and stakeholder support. Although these seven dimensions have been verified internally by Reputation Institute, this methodology and its validation have not been reported publicly, limiting researchers' and practitioners' abilities to use the seven dimensions in their respective efforts. To shed light on the model's structure, this paper

reports tests conducted to validate the measures empirically across five stakeholder groups in six countries. Multivariate analyses confirm the existence and stability of the seven underlying dimensions in the factor structure, each of which is constructed from a set of 3–4 underlying attributes. The modeling therefore validates the RepTrak<sup>®</sup> scorecard as a tool for measuring and tracking multi-stakeholder perceptions of companies.

*Corporate Reputation Review* (2015) **18**, 3–24.  
 doi:10.1057/crr.2014.21

**KEYWORDS:** corporate reputation; cross-cultural; reputation measurement; scale development; stakeholder management

## INTRODUCTION

'Reputation' is increasingly recognized for its influence on stakeholder support and engagement with companies (Fombrun, 1996, 2012). Both researchers and practitioners would therefore benefit from having a rigorous instrument to measure reputations and the ability to develop predictive models

of reputation's impact on stakeholder outcomes. Recognizing a growing need by both practitioners and academics for a better conceptual and empirical tool for assessing and managing reputation – and the lack of validated instruments for doing so – Reputation Institute launched a global project in 1998 to understand and measure the diverse factors associated with corporate reputation. The first measurement instrument that resulted from our initial exploration was the Reputation Quotient (RQ), a six-dimension scale constructed from 20 attributes (Fombrun *et al.*, 2000). The four-attribute RepTrak® Pulse measure was pulled out of the RQ in 2005 and used to create a separate measure of a person's emotional attachment to a company (eg, Christian, 1959). Ponzi *et al.* (2011) demonstrated the reliability and validity of the RepTrak® Pulse scale as a measure of reputation, and since 2005 it has been extensively tested and shown to have high face and content validity (Sarstedt *et al.*, 2013).

The full RepTrak® System was created in 2005–2006 to provide executives with an analytical instrument that could be used, not only to track and assess stakeholder perceptions of companies, but that would also enable a more comprehensive understanding of the underlying informational drivers of reputation that elicit emotional attachment. The system is based on measuring a company's overall reputation using the RepTrak® Pulse and decomposing that emotional attachment into an underlying set of dimensions and attributes, and predicting their effects on stakeholder support.

The rigorous methodological underpinnings of the model and its validation have not been reported publicly to date, limiting the ability researchers and practitioners have to use the dimensions in their work. The purpose of this paper is to report empirical tests done to validate the seven dimensions of the RepTrak® System and predict corporate reputation and stakeholder support across five stakeholder groups in six countries.

The RepTrak® System recognizes the fact that a company's overall reputation is rooted in the perceptions of its stakeholders (Newburry, 2010), each of which responds to different signals or informational inputs (Spence, 1973; Prabhu and Stewart, 2001; Basdeo *et al.*, 2006). By examining the kinds of informational inputs that influence stakeholder perceptions of a company, we can better predict the dimensions that are likely to trigger stakeholders' emotional reactions of admiration, liking and trust toward a firm – its reputation.

Stakeholder management is an important component of corporate strategy in general (eg, Freeman, 1984; Donaldson and Preston, 1995) and the study of corporate reputation in particular (Fombrun, 1996; Fombrun, 2012). Social-constructionists view reputation as a composite of different types of stakeholder perceptions of a firm (Rindova and Martins, 2012). They note that perceptions of firms come from many sources, many of which would not be considered 'valid signals' by traditional economic theory (Rindova and Martins, 2012). Signaling theory (Spence, 1973) relies on information economics to discuss the behavior of interacting actors under conditions of information asymmetry and uncertainty. In a marketplace, sellers send signals to buyers through strategic actions such as prices, warranties or return policies to demonstrate the quality of their products and other firm competencies (Basdeo *et al.*, 2006). More broadly, companies send signals to their various stakeholder groups in order to influence how they are perceived (Prabhu and Stewart, 2001; van Riel, 2012). However, these stakeholders also receive signals from other sources, such as formal media (eg, newspapers, TV; Van Den Bogaerd and Aerts, 2014; Mason, 2014), social media (eg, blogs; Fan *et al.*, 2013), friends and industry competitors, all of which influence the perceptions individuals have of firms, and in turn, their reputations.

The strategic objective of corporate communication is to align stakeholders with the goals of the organization (van Riel, 2012) in order to ensure that stakeholders develop a sense of trust in a company (Srivastava and Chakravarti, 2009; Van Der Merwe and Puth, 2014). However, stakeholders respond to different signals, making it critical for practitioners to understand and communicate across the multiple facets of companies to which stakeholders are exposed, hence the need for a multidimensional framework for measuring reputation internationally.

In the next section, we examine seven types of information signals that past literature suggests as influencers on the formation of corporate reputation, and which make up the dimensions of the RepTrak<sup>®</sup> System. Since reputation assessments have been shown to vary across stakeholder groups (van Riel and Fombrun, 2007; van Riel, 2012) and across national and other environmental contexts (eg, Michaelis *et al.*, 2008; Deephouse *et al.*, 2009; Brammer and Jackson, 2012), we assess the reliability and validity of the seven dimensions by examining the stability of the model when tested across five stakeholder groups in multiple industries, in six countries, specifically: key opinion leaders (in Brazil), the general public (in the United States), investors (in Spain), physicians (in Switzerland) and customers of the insurance industry (in Denmark and Sweden). While it would be difficult and costly to test the universal validity of the model across all stakeholder groups and research settings, by demonstrating the validity of the RepTrak<sup>®</sup> System across a diverse set of respondents, industries and countries, we suggest that the system has the potential for generalizability.

Overall, the research we report in this paper makes the following contributions. First, we validate the seven-dimensional RepTrak<sup>®</sup> framework derived from prior literature that addresses the need to manage stakeholders in general and on each of these seven reputation dimensions in particular.

Second, we empirically demonstrate the soundness of the model as an instrument that can be applied across stakeholders, industries and countries. Third, we suggest that because the RepTrak<sup>®</sup> System is a tool that was rigorously developed and validated, it has practical relevance for tracking and analyzing the reputations of companies globally.

## REPUTATION AND ITS DIMENSIONS

Prior literature suggests that a distinction can be made between stakeholder assessments based on a generalized view of reputation and assessments based on specific dimensions. Lange *et al.* (2011) conducted a literature review from which they identified three major reputation conceptualizations: being known, being known for something and generalized favorability. 'Being known' and 'generalized favorability' are broad perceptions of a company. By contrast, 'being known for something' suggests a dimensional basis for reputation measurement. Consistent with this interpretation, Lange *et al.* (2011: 166–167) noted that the critical distinction between 'being known for something' and the 'generalized favorability' dimension 'is that the latter reflects the perceiver's approach – avoidance reactions to the generalized global perceptions of the firm, while the former reflects perceiver expectations for particular desired or undesired organizational attributes or outcomes'. The distinction between a company's overall reputation and specific reputation dimensions is also analogous to the distinction between a company's overall brand and its product brands (eg, Smith *et al.*, 2010), and between general and specific brand images (Sonnier and Ainslie, 2011).

Building on the international qualitative work already completed by Reputation Institute to develop the RQ instrument (Gardberg and Fombrun, 2002; Gardberg, 2006), Reputation Institute extended the research by conducting a wide range of interviews with reputation managers, senior



communications managers and functional heads (eg, human resources, marketing and finance) of global companies headquartered around the world. These executive interviews were supplemented by consumer focus groups, a number of which were run in the United States, Europe and Asia, as well as in nine countries of Latin America (Carreras *et al.*, 2013). This broad range of stakeholder interviews and focus groups conducted between 1999 and 2006 were used to identify the seven dimension structure of corporate reputation. We review these dimensions below in terms of their conceptual roots. We then empirically validate the RepTrak® model for analyzing corporate reputation based on these seven dimensions.

### Products/Services

Most stakeholders know of a company from its product and service offerings in the marketplace, and its reputation is likely to be influenced by perceptions of its product brands (Rao *et al.*, 1999; Smith *et al.*, 2010). Some are more familiar, others less so, depending on the particular characteristics of the company's touch points with specific stakeholders. All stakeholders, and customers more so than others, can be expected to develop perceptions of a company based on its products and services – the quality of its offering, the price at which it sells, its perceived value, the customer support provided and the belief in the company's willingness to stand behind its products and services (Dawar and Parker, 1994; Lange *et al.*, 2011). Signals from the marketplace can also color the impressions that non-customer stakeholders have of any company – and so the degree to which those stakeholders will experience the company as admirable, likeable, trustworthy and well regarded. Game theory models posit that reputations, in fact, are built mainly from investments companies make to increase product quality (Milgrom and Roberts, 1986). RepTrak®'s 'products/services' dimension

therefore assesses perceptions of a company's offerings based on whether they are thought to be high in quality, in value and service, and in their ability to meet customers' needs.

### Innovation

As an important firm asset (Fang *et al.*, 2011), innovation inherently relates to doing something new or differently, and so readily generates an emotional reaction of respect and admiration for the innovator, and therefore reputation. Research confirms that there is a relationship between innovation and reputation, and recognizes that positive regard is often dependent upon effective communication about an innovation (Courtright and Smudde, 2009). Companies that adapt quickly to change, launch new products and develop new ideas are more likely to earn respect and admiration – and many publications such as *Forbes*, *Bloomberg* and *Business Week* compile and publish rankings of innovative companies, thereby conveying information that adds visibility to innovators. These publications signal to all observers about a company's innovativeness – thereby adding to their reputation. RepTrak®'s 'innovation' dimension assesses perceptions of a company as innovative and adaptive.

### Workplace

Our qualitative research suggests that most stakeholders like and respect companies that maintain good workplaces. Research asserts that satisfied employees are more likely to commit to long-term involvement, less likely to turn over and so more likely to act as ambassadors of the company and give a good employer a favorable rating. In turn, a firm's reputation as a good workplace is critical in recruiting a high-quality workforce (Alniacik *et al.*, 2012; Nolan *et al.*, 2013). Various publications highlight how companies treat their employees. *Fortune* regularly releases 'The 100 Best Companies to Work For' and

*Forbes* publishes a list of ‘The 25 Best Places to Work’. Both broadcast workplace signals into the reputational marketplace that add visibility to employers who treat their employees well. Special interest stakeholders are regularly influenced by segment-specific publications publishing lists and information about the employment practices of companies, such as *Working Mother Magazine*’s ‘100 Best Companies for Working Moms’ and the Human Rights Campaign’s ‘Corporate Equality Index’ that assesses the diversity policies of employers. Newburry *et al.* (2014) used the workplace dimension of reputation to examine issues related to foreignness and internationalization as they impact the attractiveness of employers in Latin America. Similarly, Martin *et al.* (2011) examined the relationship between employer branding and reputation. Signals that convey information about how fairly a company treats employees are likely to generate trust and respect among most stakeholders – and so contribute to building favorable reputations for those companies. RepTrak<sup>®</sup>’s ‘workplace’ dimension assesses perceptions of a company’s practices in maintaining an environment that shows concern for employees, and for treating and rewarding them fairly and equitably.

### **Governance**

Davis (2005: 143) defined corporate governance as the ‘structures, processes and institutions within and around organizations that allocate power and resource control among participants’. Given the growing complexities of multinational firms, governance is increasingly recognized as a key issue for firms (eg, Kim *et al.*, 2011; Ghosh and John, 2009). Having adequate governance structures in place to manage corporate reputation is recognized as a key component of reputation management (Casado *et al.*, 2014). Stakeholders are regularly exposed to information about a company’s governance whether from media, from auditors or from government

agencies. The more a company is perceived as ethical and transparent, the more likely it is to generate admiration and trust in the minds of most stakeholders – and hence to build reputation because ‘... the corporation tends to be viewed less as property and more as a public entity with a broad range of responsibilities to creditors, workers, the public, and others’ (Soleimani *et al.*, 2014: 4). Companies themselves often become signatories to institutional codes of conduct to signal to stakeholders their principles and commitments, generate confidence that their internal practices are sound – and thereby build reputation. RepTrak<sup>®</sup>’s ‘governance’ dimension assesses stakeholder perceptions of a company as ethical, fair and transparent.

### **Citizenship**

Qualitative inputs suggest that stakeholders tend to respect and admire a company for their good deeds (eg, Orlitzky and Swanson, 2012). Moreover, empirical evidence suggests that corporate citizenship is a legitimacy building strategic asset (Sridhar, 2012) that leads to various forms of company support (Aaron *et al.*, 2012), and can even provide a buffer that protects firms in times of crisis (Mio and Fasan, 2012). As such, companies commonly expend significant dollar amounts and marketing efforts to promote these activities and thereby build up a company’s image (Gottschalk, 2013; Morris *et al.*, 2013; Vlachos *et al.*, 2013). Empirically, corporate social performance has been one of the main correlates of corporate reputation (Lange *et al.*, 2011). By acting responsibly and communicating about it, companies signal that they are good citizens, deserving of praise, and thereby build trust and reputation. Good citizenship is itself a multidimensional construct, one commonly understood to encompass notions of environmental sustainability and responsible behavior (Tichy *et al.*, 1997). Past research suggests that corporate citizenship can cut both ways (eg, Koschate-Fischer *et al.*, 2012).

Some stakeholders credit companies for acting like good citizens and view it as a form of relationship marketing, while others see it as a distraction and an unnecessary drain on corporate resources. RepTrak®'s 'citizenship' dimension assesses stakeholder perceptions of a company as environmentally friendly, a supporter of good causes and a positive contributor to society.

### Leadership

CEOs can be important catalysts for generating admiration and trust with stakeholders (Flatt *et al.*, 2013; Halff, 2013). Studies of celebrity CEOs (Treadway *et al.*, 2009), star CEOs (Wade *et al.*, 2008) and CEO Brands (Bendisch *et al.*, 2013) defend the importance of leadership in conveying a company's success and performance to the financial community and other stakeholders. Moreover, research confirms that managers do differ in their strategic abilities (Goldfarb and Yang, 2009). Appealing leaders attract favorable media coverage and investor endorsements, thereby signaling to all stakeholders the credibility of the company's activities, increasing confidence and trust in the company, and thereby building corporate reputation. Published rankings of CEOs induce favorable perceptions of a company's leaders, and can build an appealing halo for the company itself (Gaines-Ross, 2002; Westphal and Deephouse, 2011). RepTrak®'s 'leadership' dimension is intended to assess perceptions of leaders as excellent and visionary managers, and strong endorsers of their companies.

### Performance

A common signal that influences how stakeholders assess companies is 'financial performance'. Although stakeholders place different expectations on organizations, strong financial performance is in part the consequence of satisfying these diverse objectives (Donaldson and Preston, 1995; Waddock and Graves, 1997;

Walsh *et al.*, 2003). Past and current profitability are important signals to investors about the company's operating success. It also signals the likelihood of continuing profitability – indicating a company with strong future prospects for growth. Expectations of future profitability are important to all valuation models – and therefore are a powerful signal about the strength of a company's business model. Profitability and growth prospects have been shown to influence ratings of the 'world's most-admired' companies (Fombrun and Shanley, 1990), and have been consistent correlates of reputation in other academic studies (Lange *et al.*, 2011). RepTrak®'s 'performance' dimension is therefore based on a set of attributes that assess stakeholder perceptions of a company's overall financial performance, profitability and growth prospects.

Table 1 describes the seven-dimension model and 23 attributes of the RepTrak® scorecard. In the next section, we examine the validity of this model across a varied set of stakeholders, industries and countries.

### METHODOLOGICAL APPROACH

To explore the cross-stakeholder validity of the RepTrak® System, we selected five studies conducted in 2010–2011. Each study was selected from past studies conducted by Reputation Institute that used a common survey instrument with sufficient sample size across different stakeholder groups and countries. Although no finite number of samples could demonstrate universal validity of the dimensions across all stakeholders and countries, by selecting a diverse set of stakeholders and countries, we seek here to demonstrate that the seven-dimension structure has reasonable validity across a broad range of respondents and geographical settings. In each study, structural equation modeling (SEM) was then applied to examine the reliability and validity of the multidimensional framework. SEM has several advantages over

**Table 1: The RepTrak<sup>®</sup> System: Dimensions and Attributes of Reputation**

<i>Dimension</i>	<i>Attribute</i>
Products & Services	Offers high quality products and services
Products & Services	Offers products and services that are a good value for the money
Products & Services	Stands behind its products and services
Products & Services	Meets customer needs
Innovation	Is an innovative company
Innovation	Is generally the first company to go to market with new products and services
Innovation	Adapts quickly to change
Workplace	Rewards its employees fairly
Workplace	Demonstrates concern for the health and well-being of its employees
Workplace	Offers equal opportunities in the workplace
Governance	Is open and transparent about the way the company operates
Governance	Behaves ethically
Governance	Is fair in the way it does business
Citizenship	Acts responsibly to protect the environment
Citizenship	Supports good causes
Citizenship	Has a positive influence on society
Leadership	Has a strong and appealing leader
Leadership	Has a clear vision for its future
Leadership	Is a well-organized company
Leadership	Has excellent managers
Performance	Is a profitable company
Performance	Delivers financial results that are better than expected
Performance	Shows strong prospects for future growth

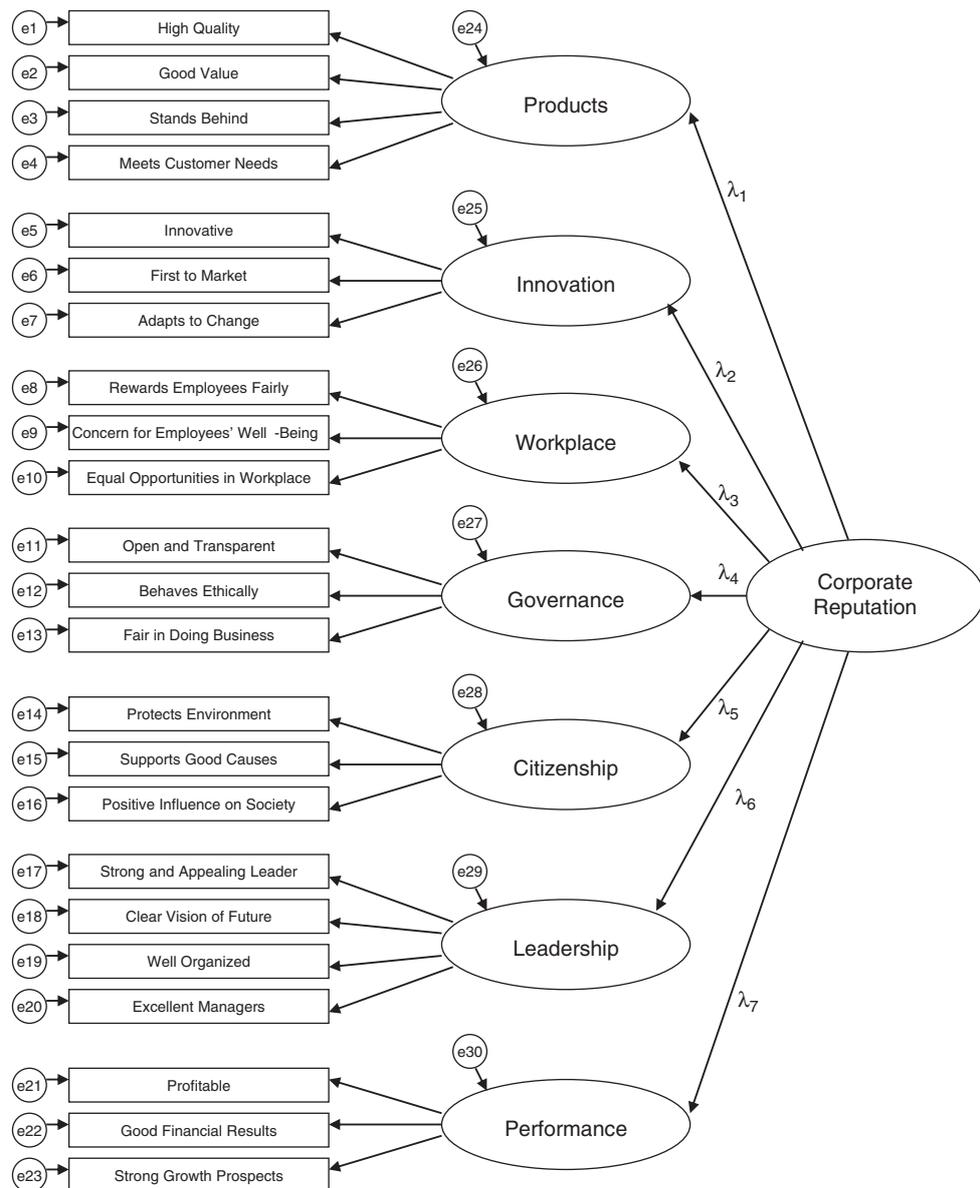
more traditional techniques, particularly when the model to be evaluated is not directly observable.

The hypothesized model we are testing postulates that corporation reputation can be measured using 23 observed variables that load into a first-order structure that consists of seven latent variables labeled as Products/Services, Innovation, Workplace, Governance, Citizenship, Leadership and Performance. These seven dimensions describe a single second-order factor structure measuring 'Reputation'.

A review of the theoretical SEM-related literature on corporate reputation has revealed a number of different constructed measures with a mix of formative and reflective models. A discussion of this literature is

beyond the scope of this paper. However, our data-led methodological approach pointed us to a 'reflective' specified model, which refers to the case that observable variables (or attributes) are 'reflective' or representative of a defined reputation construct – in our case, the RepTrak<sup>®</sup> Pulse. As reflective, the overall model should be unidimensional and the items correlated. The model is graphically illustrated in Figure 1.

The next section describes the sample and data cleaning procedures we applied. We then present the results of the first and second-order confirmatory factor analyses conducted using AMOS v22.0 software. A maximum likelihood estimation model was adopted because it provided the most stable results for our sample sizes.



**Figure 1:** Hypothetical model of corporate reputation

### SAMPLE AND DATA

Five stakeholder data sets were selected for their ability to represent a cross-section of commonly measured stakeholders, industries and countries (see Table 2):

- Study 1: A representative sample of the general public in the United States.
- Study 2: A sample of key opinion leaders in Brazil.
- Study 3: A sample of investors and customers assessing banks in Spain.
- Study 4: A sample of doctors assessing a pharmaceutical company in Switzerland.
- Study 5: A sample of customers in Denmark and Sweden assessing insurance companies.

**Table 2: Summary of Sample and Data Collection Methodologies**

<i>Stakeholder groups</i>	<i>Study 1</i>	<i>Study 2</i>	<i>Study 3</i>	<i>Study 4</i>	<i>Study 5</i>
	<i>General public</i>	<i>Key opinion leaders</i>	<i>Bank customers &amp; investors</i>	<i>Physicians</i>	<i>Insurance buyers</i>
Markets	The United States	Brazil	Spain	Switzerland	Denmark and Sweden
Year of study	2011	2010	2007	2007	2011
DC method	Online	CATI	CATI	Online	Online
Company list	150	10	10	10	9
Sample source	Panel	Panel	Client List	Panel	Panel
Initial sample size	4,652	1,291	2,328	585	3,300
Sample size after listwise deletion	1,835	564	580	585 <sup>a</sup>	942
Sample size after outliers	1,813	538	532	557	942
Final sample size	1,813	538	532	300 <sup>b</sup>	500 <sup>b</sup>

<sup>a</sup>Includes EM imputed values

<sup>b</sup>Random sample

Respondents in the five stakeholder samples were randomly selected from a larger sample set in each country, except for Study 3 in which a study sponsor provided a customer list. Respondents were screened for their familiarity with each of the companies and then asked to assess familiar companies on each of the 23 attributes of the RepTrak<sup>®</sup> scorecard, scored on 7-point Likert scales ranging from 'Does not describe well' to 'Describes very well'. Respondents also had the option to reply 'not sure' to questions posed.

### Treatment of Missing Values

Table 2 also shows the sample sizes and missing values in the initial data sets. Listwise deletion was applied to records with missing values in Studies 1, 2, 3 and 5. In Study 4, to deal with the smaller sample size, missing values were replaced with imputed values using EM (Dempster *et al.*, 1977), an algorithm that produces acceptable results even

when underlying normality assumptions do not hold or missing data are not completely random (Little, 1992). With a minimum of 20 records per variable, the five data sets were sufficiently large to achieve statistical power (McQuitty, 2004; Schreiber *et al.*, 2006).

### Treatment of Outliers

To legitimate multivariate analyses, all variables in the model were presumed to follow normality assumptions. Each data set was therefore examined for violations of normality. Outliers often contribute significantly to departures from normality and to distortions of the covariance matrix. Deleting outliers lowers multivariate skew and kurtosis. Kline (2005) recommends removing outliers if they reduce absolute values of skew to less than 3.0 and kurtosis to less than 10. These violations of multivariate normality can also be evaluated in one step by examining Mardia's multivariate kurtosis. The analysis identified outliers by calculating Mahalanobis distances

**Table 3: Assessment of Multivariate Normality**

Study	All cases				Final sample after removal of outliers			
	Skew	Critical ratio of skew	Kurtosis	Critical ratio of kurtosis	Skew	Critical ratio of skew	Kurtosis	Critical ratio of kurtosis
1	-0.77	-21.43	0.55	7.69	-0.73	-12.73	0.32	2.79
2	-1.58	-23.22	2.76	20.24	-1.63	-15.45	3.19	15.11
3	-1.00	-19.61	1.10	10.79	-0.89	-8.34	1.00	4.70
4	-1.00	-19.61	1.10	10.79	-0.89	-8.34	1.00	4.70
5	-0.11	-2.64	0.05	0.64	-0.16	-1.49	0.08	0.38
			Overall improvement		15%	46%	26%	48%

for each record in the data set. The larger the distance, the more likely the record was to violate multivariate normality. We deleted observations with distance greater than 100. Table 3 depicts the results of the assessment of the multivariate normality of each stakeholder sample and overall improvement from removing outliers. Since any remaining non-normality could lead to overestimation of  $\chi^2$  fit statistics, potentially leading to false rejection of any model tested, we also report additional fit statistics to assess each of the multivariate models tested using SEM.

The final samples analyzed in this paper consisted of 1,813 random respondents drawn from the US general public assessing the 150 largest US companies; 538 key opinion leaders in Brazil assessing 10 of Brazil's largest companies; 532 bank clients and investors in Spain assessing Spain's 10 largest banks; 300 physicians in Switzerland assessing the world's 10 largest pharmaceutical companies; and 500 insurance clients in Denmark and Sweden assessing 9 insurance providers.

## DATA ANALYSES AND RESULTS

The results are presented in three parts. First, we examine the reliability and validity of each of the hypothesized dimensions across

the data sets using exploratory factor analysis. Second, we carry out a first-order confirmatory factor analysis on each of the studies to test for the validity of the hypothesized seven-dimension factor structure of corporate reputation. Third, we conduct a second-order confirmatory factor analysis to justify the dimensional hierarchy of corporate reputation.

### Establishing Reliability

An exploratory factor analysis using principal components was run on the 23 attributes. The researchers selected an equamax non-orthogonal rotation because of its properties to equally distribute explained variance and clarify the underlying structure of unexplored data sets (Hair *et al.*, 2006). Tables 4 and 5 depict diagnostic measures of each study, which included KMO, Bartlett's test and Communalities. The measures were examined and found to be acceptable.

An examination of the factor-rotated structures in each study revealed a pattern matrix that matched the hypothesized RepTrak® framework, and attributes associated with Innovation, Workplace and Products/Services loaded consistently on the hypothesized dimensions. Two pairs of

**Table 4: Exploratory Factor Analysis Diagnostics**

	<i>EFA Diagnostic</i>					
	<i>Study 1</i>	<i>Study 2</i>	<i>Study 3</i>	<i>Study 4</i>	<i>Study 5</i>	
Kaiser–Meyer–Olkin measure of sampling adequacy (KMO)	0.990	0.988	0.972	0.960	0.983	
Bartlett's test of sphericity	Approx. 62,862.029	16,557.721	12,987.239	7,576.367	29,537.866	
	$\chi^2$					
	d.f.	253	253	231	253	253
	Sig.	0.000	0.000	0.000	0.000	0.000

**Table 5: Communalities**

	<i>Communalities – Extraction</i>				
	<i>Study 1</i>	<i>Study 2</i>	<i>Study 3</i>	<i>Study 4</i>	<i>Study 5</i>
Adapts quickly to change	0.851	0.838	0.890	0.871	0.884
Behaves ethically	0.902	0.849	0.897	0.794	0.845
Clear vision for its future	0.900	0.854	0.858	0.834	0.895
Employee well-being	0.879	0.890	0.867	0.848	0.900
Environmentally responsible	0.895	0.973	0.869	0.824	0.844
Excellent management	0.888	0.893	0.805	0.896	0.892
Fair in the way it does business	0.893	0.850	0.786	0.889	0.919
First to market	0.954	0.840	0.888	0.827	0.858
High quality	0.896	0.875	0.844	0.898	0.899
High-performing innovative	0.946	0.863	0.800	0.869	0.880
Meets customer needs	0.880	0.834	0.849	0.880	0.888
Offers equal opportunities	0.892	0.879	0.854	0.790	0.895
Open and transparent	0.906	0.903	0.822	0.793	0.892
Positive influence on society	0.891	0.928	0.887	0.817	0.821
Profitable	0.887	0.863	0.876	0.818	0.892
Rewards employees fairly	0.971	0.977	0.938	0.848	0.963
Shows growth prospects	0.909	0.889	0.868	0.846	0.881
Stands behind	0.878	0.875	0.834	0.882	0.896
Strong and appealing leader	0.897	0.859	0.888	0.836	0.887
Supports good causes	0.878	0.828	0.839	0.890	0.894
Value for money	0.871	0.893	0.894	0.867	0.944
Well organized	0.887	0.861	0.885	0.812	0.909
	0.894	0.873	0.831	0.893	0.889

Extraction method: Principal component analysis.

dimensions cross-loaded within individual studies, namely the Performance and Leadership attributes, and the Citizenship and Governance attributes. However, all four of

these dimensions were well-defined when the five data sets were pooled across stakeholders. The total explained variance ranged from 83 to 90 percent across the five studies.

**Table 6: Factor Loadings and Correlations for Each Study**

	<i>Factor loadings &amp; correlations</i>				
	<i>Study 1</i>	<i>Study 2</i>	<i>Study 3</i>	<i>Study 4</i>	<i>Study 5</i>
Corporation Reputation & RepTrak® Pulse	0.848	0.848	0.873	0.864	0.871
Products & Services	0.978	0.976	0.993	0.948	0.960
Innovation	0.989	0.989	0.994	0.906	0.941
Workplace	0.960	0.962	0.949	0.845	0.926
Governance	0.970	0.969	0.989	0.915	0.993
Citizenship	0.977	0.983	0.977	0.881	0.968
Leadership	0.997	0.997	0.975	0.946	0.966
Performance	0.982	0.975	0.935	0.909	0.932

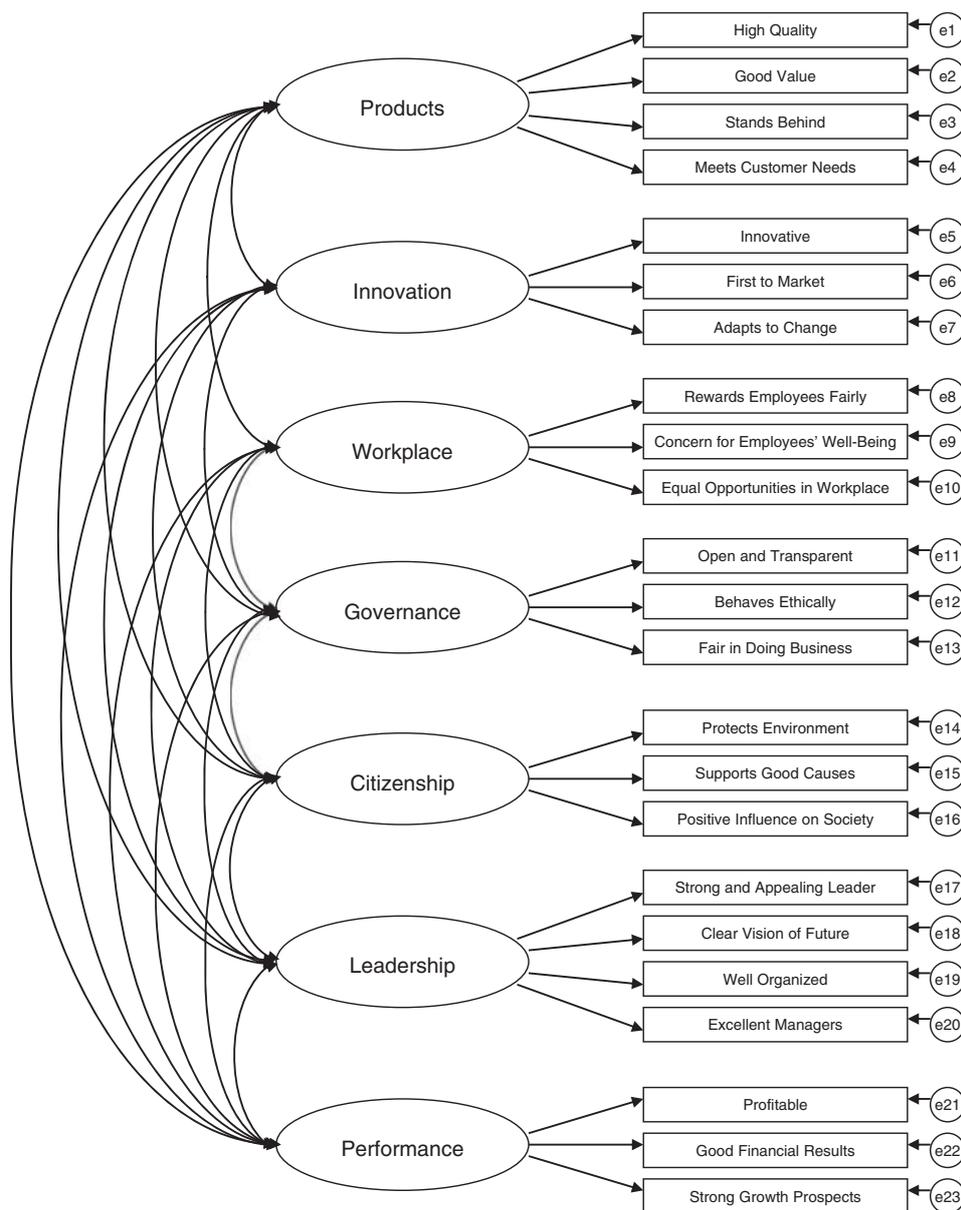
In each study, we examined the reliability of the seven dimensions of the hypothesized model using Cronbach's  $\alpha$  (Nunnally and Bernstein, 1994). Seven Cronbach's  $\alpha$  coefficients were calculated for each study, and a total of 35 tests examined.  $\alpha$  coefficients ranged from a low of 0.84 (Physicians-Innovation dimension) to a high of 0.96 (Insurance-Product dimension). Cronbach's  $\alpha$ 's on each test were all above 0.7, indicating strong scale reliability (Nunnally and Bernstein, 1994). In addition, we tested the effect of deleting an attribute on each dimension scale. All dimension alpha coefficients were higher with all of the hypothesized dimension attributes included than with any of the attributes excluded, further supporting scale reliability. These analyses provide support for the internal consistency of the dimensional structure of the RepTrak® System.

Finally, the Exploratory Factor Analysis structure and loadings were examined. Table 6 depicts the standard estimates for each study factor loadings and correlations. The results illuminate that the overall structure is unidimensional and the items are correlated. Each study structure and attribute factor loadings on each dimension provided adequate support for the convergent and discriminant validity of the model.

### Confirming Internal Validity: The First-Order Factor Model

A first-order confirmatory factor analysis was run to examine the variance shared by observed variables with the latent or unobserved variables that were hypothesized to explain 'Corporate Reputation'. The aim of these analyses was to demonstrate that the dimensions of each first-order model converge. We carried out a first-order confirmatory factor analysis with maximum likelihood on the seven-factor measurement model illustrated in Figure 2.

The first-order confirmatory factor analysis produced an acceptable fit across all five studies. While the literature is specific with regards to the fit indices, to assess how well the models represented the data, we followed Hair *et al.*'s (2010) suggestion regarding a mix of fit indices, and examined  $\chi^2$ , one incremental fit test (ie, Comparative Fit Index, CFI), one goodness-of-fit index (ie, Tucker-Lewis Index, TLI), and one badness-of-fit index (ie, Root Mean Square Error of Approximation, RMSEA). These indices have been shown in past research to demonstrate very little random variation due to sample size, number of parameters, model misspecification or method of estimation (Fan *et al.*, 1999). The  $\chi^2$  test statistic is significant and is discussed below. A CFI of 0.90



**Figure 2:** Validating dimensionality using first-order confirmatory factor analysis

and above testifies to strong scale unidimensionality. A CFI and TLI above 0.90 indicates convergent validity. RMSEA values between 0.05 and 0.08 are considered acceptable. Table 7 presents the fit statistics we examined across the five data sets and demonstrates a robust model fit.

The most commonly cited fit index in the literature is the  $\chi^2$  test statistic.

However, as mentioned earlier, there are several problems with solely relying on this index. The  $\chi^2$  test statistic is problematic when used with data that are not multivariate normal; it is extremely sensitive to sample size, and also affected by the number of parameters in the model (Schermelleh-Engel *et al.*, 2003; Satorra and Bentler, 2001). In a large sample, a  $\chi^2$

**Table 7: Goodness-of-Fit Indices of First-Order Factor Models**

Study	$\chi^2$	d.f.	CFI	TLI	RMSEA	VE
1	1574.0***	209	0.98	0.97	0.06	0.83
2	416.8***	209	0.99	0.99	0.04	0.80
3	758.7***	209	0.96	0.95	0.07	0.78
4	808.8***	209	0.92	0.90	0.10	0.74
5	586.7***	209	0.98	0.97	0.06	0.82

\*\*\* $P$ -value < 0.000

Note:  $\chi^2$  Chi-Square, d.f. Degrees of Freedom, CFI Comparative Fit Index, TLI Tucker–Lewis, RMSEA Root mean Error of Approx., VE Variance Extracted

test almost always leads to rejection of the model. To this end, the  $p$ -values associated with the computed  $\chi^2$  did not exceed 0.05 for each of the five stakeholder groups. However, it is often noted that ‘inconsistency among indices is common, and having the chi-square as the outlier is particularly common’ (Eagle *et al.*, 2001: 13). As such, we concluded that our overall set of analyses demonstrate strong model fit.

### Convergent Validity

To assess convergent validity, we examined the loadings of each factor and the average variance extracted (AVE) of the scale. Across studies, each observed variable had a significant loading on its respective latent construct ( $P < 0.001$ ) with values ranging from 0.78 to 0.94. AVE represents the variance in the independent variables accounted for by each latent variable. Across the five studies, AVE was greater than 0.7, which exceeds the recommended 0.5 benchmark value (Fornell and Larcker, 1981), and confirms the measure’s convergent validity.

### Discriminant Validity

Establishing discriminant validity is required for latent variables analysis. Fornell and

Larcker (1981) argue that lack of discriminant validity creates uncertainty about whether the results confirm a hypothesized structure or whether the results demonstrate statistical inconsistencies (Farrell, 2010). To operationalize discriminant validity, we compared AVE with the amount of shared variance (Farrell, 2010). Shared variance is the amount of variance that the latent variable is able to explain in another latent variable, and is calculated as the square of the correlation estimates or factor loadings.

An appropriate test for discriminant validity involves demonstrating that the AVE of observed attributes of a dimension is significantly larger than the shared variance of the dimensions in the model (Fornell and Larcker, 1981). Table 8 shows that the AVE of each dimension was indeed greater than its shared variance with any other dimension across all studies, with one exception out of 420 tests (Study 1, Innovation  $\leftrightarrow$  Performance), thereby supporting the discriminant validity of the model.

### Establishing Construct Validity: The Second-Order Factor Model

The seven endogenous constructs (the reputation dimensions) are viewed as mediating variables into a single second-order latent variable. Second-order factor models were therefore developed from the underlying first-order models. The purpose of these second-order models is to provide external construct validity by confirming that the RepTrak® framework maintains the hypothesized second-order factor structure by converging on the latent reputation construct variable (Spector, 1992). We used the previously validated RepTrak® Pulse measure of corporate reputation as the external dependent variable (Ponzi *et al.*, 2011). Figure 3 describes the model specification whose construct validity we sought to establish.

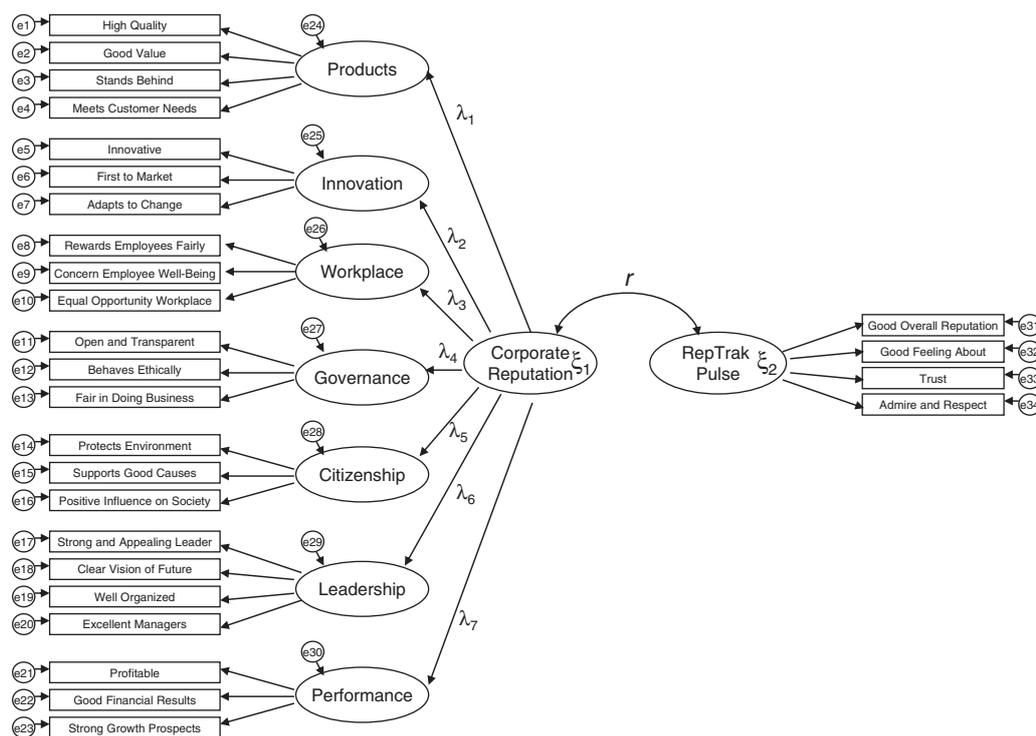
**Table 8: Discriminant Validity of First-Order Confirmatory Factor Analysis**

<i>Dim A</i>	<i>Dim B</i>	<i>SH 1</i>				<i>SH 2</i>			
		<i>Dim A on Dim A</i>	<i>Dim B on Dim A</i>	<i>Dim B on Dim B</i>	<i>Dim A on Dim B</i>	<i>Dim A on Dim A</i>	<i>Dim B on Dim A</i>	<i>Dim B on Dim B</i>	<i>Dim A on Dim B</i>
Products	<-> Innovation	0.458	0.247	0.553	0.387	0.731	0.599	0.293	0.095
Products	<-> Governance	0.539	0.279	0.561	0.283	0.310	0.127	0.671	0.569
Products	<-> Citizenship	0.508	0.229	0.593	0.323	0.720	0.540	0.300	0.106
Products	<-> Workplace	0.525	0.205	0.610	0.303	0.589	0.296	0.539	0.254
Products	<-> Leadership	0.455	0.269	0.560	0.386	0.219	0.043	0.758	0.692
Products	<-> Performance	0.523	0.263	0.524	0.330	0.176	0.002	0.689	0.831
Innovation	<-> Governance	0.573	0.354	0.497	0.190	0.348	0.146	0.655	0.506
Innovation	<-> Citizenship	0.475	0.302	0.532	0.305	0.633	0.465	0.358	0.169
Innovation	<-> Workplace	0.513	0.268	0.555	0.256	0.551	0.292	0.540	0.264
Innovation	<-> Leadership	0.453	0.480	0.382	0.343	0.248	0.049	0.760	0.917
Innovation	<-> Performance	0.391	0.310	1.183	0.402	0.466	0.176	0.621	0.377
Governance	<-> Citizenship	0.484	0.304	0.538	0.379	0.655	0.498	0.335	0.143
Governance	<-> Workplace	0.524	0.249	0.577	0.327	0.614	0.400	0.443	0.203
Governance	<-> Leadership	0.551	0.303	0.512	0.292	0.269	0.069	0.743	0.609
Governance	<-> Performance	0.553	0.165	0.582	0.288	0.476	0.159	0.632	0.363
Citizenship	<-> Workplace	0.500	0.301	0.532	0.325	0.561	0.299	0.539	0.252
Citizenship	<-> Leadership	0.512	0.335	0.484	0.294	0.505	0.240	0.595	0.312
Citizenship	<-> Performance	0.497	0.199	0.579	0.316	0.419	0.101	0.682	0.395
Workplace	<-> Leadership	0.595	0.362	0.457	0.221	0.582	0.233	0.595	0.254
Workplace	<-> Performance	0.563	0.243	0.517	0.257	0.538	0.118	0.661	0.305
Leadership	<-> Performance	0.408	0.237	0.553	0.428	0.261	0.071	0.671	0.607



Table 8: (Continued)

Dim A	Dim B	SH 3				SH 4				SH 5			
		Dim A on Dim A	Dim B on Dim A	Dim B on Dim B	Dim A on Dim B	Dim A on Dim A	Dim B on Dim A	Dim B on Dim B	Dim A on Dim B	Dim A on Dim A	Dim B on Dim A	Dim B on Dim B	Dim A on Dim B
Products	<-> Innovation	0.601	0.215	0.617	0.248	0.685	0.546	0.292	0.005	0.541	0.196	0.643	0.321
Products	<-> Governance	0.639	0.249	0.585	0.202	0.335	0.059	0.742	0.425	0.512	0.280	0.499	0.336
Products	<-> Citizenship	0.690	0.246	0.580	0.136	0.450	0.136	0.641	0.298	0.562	0.195	0.623	0.283
Products	<-> Workplace	0.687	0.194	0.572	0.140	0.460	0.133	0.750	0.263	0.538	0.114	0.726	0.311
Products	<-> Leadership	0.599	0.220	0.610	0.257	0.420	0.139	0.693	0.329	0.489	0.142	0.684	0.371
Products	<-> Performance	0.655	0.223	0.541	0.194	0.452	0.118	0.687	0.276	0.575	0.133	0.638	0.277
Innovation	<-> Governance	0.686	0.215	0.611	0.126	0.353	0.031	0.761	0.429	0.647	0.312	0.491	0.186
Innovation	<-> Citizenship	0.726	0.290	0.535	0.082	0.659	0.714	0.206	0.002	0.655	0.279	0.554	0.180
Innovation	<-> Workplace	0.728	0.212	0.544	0.074	0.533	0.222	0.677	0.185	0.608	0.260	0.599	0.236
Innovation	<-> Leadership	0.650	0.233	0.579	0.184	0.284	0.004	0.796	0.561	0.582	0.236	0.589	0.266
Innovation	<-> Performance	0.656	0.246	0.514	0.191	0.278	0.005	0.760	0.620	0.594	0.186	0.594	0.244
Governance	<-> Citizenship	0.512	0.168	0.644	0.289	0.220	0.002	0.733	0.728	0.573	0.365	0.499	0.246
Governance	<-> Workplace	0.518	0.098	0.639	0.283	0.477	0.136	0.752	0.341	0.629	0.320	0.549	0.209
Governance	<-> Leadership	0.463	0.063	0.714	0.347	0.419	0.105	0.719	0.417	0.505	0.276	0.574	0.324
Governance	<-> Performance	0.494	0.029	0.695	0.317	0.426	0.040	0.758	0.405	0.607	0.209	0.582	0.198
Citizenship	<-> Workplace	0.605	0.164	0.582	0.223	0.459	0.196	0.707	0.340	0.570	0.232	0.626	0.268
Citizenship	<-> Leadership	0.505	0.045	0.727	0.307	0.543	0.166	0.656	0.266	0.535	0.287	0.551	0.319
Citizenship	<-> Performance	0.478	0.012	0.711	0.339	0.555	0.084	0.717	0.250	0.585	0.198	0.589	0.256
Workplace	<-> Leadership	0.482	0.037	0.740	0.261	0.572	0.233	0.607	0.339	0.630	0.245	0.572	0.228
Workplace	<-> Performance	0.475	0.011	0.717	0.275	0.638	0.178	0.628	0.261	0.650	0.193	0.582	0.201
Leadership	<-> Performance	0.207	0.046	0.663	0.644	0.200	0.007	0.756	0.677	0.450	0.181	0.592	0.384



**Figure 3:** Establishing construct validity using second-order confirmatory factor analysis

Table 9 summarizes the goodness-of-fit indices for the five second-order factor models that were tested. Each model provides support for the hypothesis that the seven dimensions of the RepTrak® System are components of a second-order construct that can be described as ‘Corporate Reputation’.

In sum, these analyses confirm the underlying dimensional structure of corporate reputation hypothesized in the RepTrak® System. The results are persuasive because they verified the dimensionality of the corporate reputation measure across five stakeholder groups, in multiple industries and across six geographies. The results therefore provide robust empirical support for the reliability and validity of the RepTrak® System and provide researchers and practitioners

**Table 9: Goodness-of-fit Indices of Second Order Factor Models**

Study	$\chi^2$	d.f.	CFI	TLI	RMSEA
1	2218.7***	313	0.98	0.97	0.06
2	777.6***	316	0.98	0.98	0.05
3	1241.3***	314	0.95	0.94	0.08
4	964.7***	311	0.93	0.92	0.08
5	845.9***	312	0.97	0.97	0.06

\*\*\* $p < 0.000$

Note:  $\chi^2$  Chi-square, d.f. Degrees of Freedom, CFI Comparative Fit Index, TLI Tucker–Lewis, RMSEA Root mean Error of Approximation

the confidence they need to apply the model for measuring corporate reputations across stakeholders, industries and geographies.

## DISCUSSION AND CONCLUSIONS

Researchers and practitioners have struggled for years to measure rigorously the reputations of companies (Dowling and Gardberg, 2012). The need for a rigorous comparative measure has been made abundantly clear in conferences and journals for decades. Despite extensive conversations and debate, there remains a lack of consensus about the dimensionality and structure of the construct 'corporate reputation' (see, eg, Barnett and Pollock, 2012).

The analyses reported in this paper took a point of departure in various studies that have relied on Reputation Institute's RepTrak® System for measuring corporate reputations. By applying multivariate analyses to five representative data sets, we provide robust evidence of the reliability, internal validity and external validity of the RepTrak® System's seven dimensions and 23 attributes.

A first important theoretical implication of this study is the explicit attention given to validating a framework that incorporates both the seven dimensions of reputation and its generalized representation (the RepTrak® Pulse). Doing so should prove invaluable for future academic research by enabling a more thorough understanding of corporate reputation and its influences. It suggests that the emotional appeal of a company – its reputation – can be partly explained by the informational content of the signals to which stakeholders respond.

By demonstrating the effectiveness of the signaling process (eg, Spence, 1973; Prabhu and Stewart, 2001), the model invites researchers to develop more fine-grained theories to explain how specific dimensions of reputation influence outcomes. While a few such studies have been conducted (D'Souza *et al.*, 2013; Newburry *et al.*, 2014; Vidaver-Cohen and Brønn, 2013), we see considerable opportunity to complement the vast majority of past research that has focused narrowly on the generalized reputation construct. Future research should identify the

specific impact that the seven dimensions of reputation have on outcomes of interest, including stakeholders' supportive intent (eg, Newburry, 2010) and its manifestation in a company's sales, risk profile and financial performance (eg, Smith *et al.*, 2010).

From a practitioner standpoint, a validated management tool with predictive ability is paramount to tracking and managing stakeholder perceptions and relationships. The RepTrak® System provides practitioners a toolbox of complementary measures for both tracking and analysis of reputations and for linking to outcomes. Of particular value to managers is the demonstrated validity of the RepTrak® System to measure cross-industry, cross-stakeholder and cross-country perceptions of stakeholders. Multinational companies need this capability to address the diversity of the global environment in which they operate. Consistent tracking of stakeholder perceptions is one thing. The ability to use the RepTrak® System to predict profitable pathways for improving business outcomes, however, is another. With a validated tool in hand, practitioners are in a better position now to build predictive models to explain where best to allocate their scarce resources in order to optimize outcomes.

This study is not without its limitations, of course. First, our validation relied on five studies of stakeholders in six countries. Given the increasing recognition of the importance of national and other environmental contexts (eg, Prabhu and Stewart, 2001; Michaelis *et al.*, 2008; Berger and Fitzsimons, 2008), future studies should validate the measure with additional stakeholder groups in other cultural contexts. Given known differences between Western and Eastern cultures (eg, Chen *et al.*, 2005), validation of the framework with respondents in Asia is particularly needed. Second, future research should also examine links between RepTrak®'s dimensions and their direct and indirect impacts on supportive behaviors and business outcomes (Newburry, 2010), consistent with

similar studies on brand value (eg, Goldfarb *et al.*, 2009). Finally, studies of additional industries and stakeholders could further confirm the generalizability of the measurement system.

Overall, this paper has put forward a robust validation of the RepTrak<sup>®</sup> System for measuring reputations, one that practitioners can rely upon to track their reputations on a continuous basis, to analyze the underlying dimensional drivers of their reputations and to link to outcome measures of interest to their businesses, such as supportive intent, sales, investor and employee churn, and financial performance (Fombrun, 1996). Given the increasingly recognized importance of reputation to all organizations, the availability of a robust measurement tool such as RepTrak<sup>®</sup> can help improve how we manage, not only reputational issues, but the intangible economic asset that a corporate reputation represents.

### Acknowledgements

The authors thank Professor Naomi Gardberg, Sebastian Taciak, RI Manager – Global Research & Analytics, CRR Editor Cees van Riel and three anonymous reviewers for their helpful comments and suggestions on previous drafts of this paper.

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