

Measurement of Culture & Organizational Effectiveness– A Study of Firms in India

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Abstract: Organizations today face challenge of designing not only an enabling organizational structure that drives performance but also to ensure sustainability by giving considerations to influences that drives the performance. Organizational culture is one such enabling factor that ensures the enabling and alignment between organization structure and also performance. In this study we have looked at measurement of organizational culture and organizational effectiveness of Indian firms by measuring perceptual indicators of employees working in Indian firms. The study adopts questionnaire where responses of employees of 134 Indian firms from NSE 500 were analysed using step wise approach of structural equation modelling. The study reveals high construct validity and reliability of measurement model of culture and organizational effectiveness.

Keywords: Culture, Organizational Effectiveness, Performance, Structural Equation Modelling

I. Introduction

Culture is viewed as very complex phenomenon (Dubkevic & Barbars, 2010) and it can take very broad, wide and multi aspect dimensions. Organization culture can be viewed as set of beliefs, values and shared assumptions in an organization. Hofstede (1998), states that culture should be posited in the minds of all members of an organization. There are various interpretations of organizational culture. Schein, 1985, defines culture as a value system that ultimately determines attitude and has following characteristics:

- It is a shared pattern of basic assumptions.
- Invented, discovered or developed by given set of groups.
- It has ability to learn to cope with problems through external adaptation and internal integration.
- That has worked well enough to be considered valid and therefore.
- It is to be taught to new members as the,
- Correct way to perceive, think and feel in relation to those problems.

Schein (1990) and Daft (2005) described three levels of culture manifestations:

1. The Artifacts: the observable values, that are visible in organizational structure and processes; and they are hard to understand.
2. The espoused Values: an image that an organization creates. The strategies, goals and philosophies that are formulated re-enforces this image.
3. Basic Assumptions: these are core beliefs that form the essence of culture.

This view was later reinforced by Peters & waterman (1982) in their book “In Search of Excellence”.

Cultural Dimension

Wallach (1983) describes culture as “shared understanding of the beliefs, values, norms and philosophies of how things work”. According to Wallach culture can be divided in to three parts:

1. A Bureaucratic culture: a very systematic and organized culture that is based on power and control with clearly defined duties, responsibilities and authority structure (Koberg & Chusmir, 1987). It emphasizes on rules and regulations (Berson et al., 2008). Adler & Borys, 1996, showed the bureaucratic characteristics to be formal, specialized, hierarchical, and inflexible.
2. An Innovative culture: a very creative, result / goal oriented challenging work environment that is portrayed as being entrepreneurial ambitious, risk taking, stimulating and self driven.
3. A Supportive culture: Koberg & Chusmir (1987) showed supportive dimension to include warm, trusting, sociable, and friendly relationship oriented. Team / people oriented culture that encourages and supports team building by providing a mutual trust based work environment. This culture is characterized by

harmonious, safe, equitable and collaborative. Organizational members share organizational values through commitment towards organization (Akaah, 1993).

These dimensions are related to the work environment in an organization (Akaah, 1993). Most organizations are combination of these aforesaid dimensions, but there is generally one of the dimension that is dominant (Silverthorne,2004).Wallach (1983) states that an employee can realize his / her full potential if individual motivation and organizational culture match with each other. Hofstede (1990), Organizational culture has two parts – visible (symbols, heroes, rituals) and invisible (values); and we can change only the visible part of an organization by systems, plans and policies.

Levels of Organizational Culture

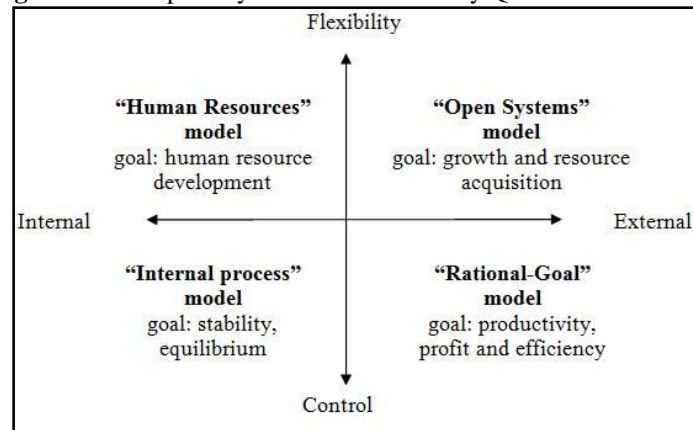
Organizational culture can have many levels for example: Entire Corporation, a national subsidiary, a specific division or a work group. According to Hofstede (1998), these levels have to be homogenous and connected with each other.Organizational culture can also be explained at the levels of employees: teams, groups, cross functional teams and at individual levels. According to Kwantes & Boglarsky, 2007, individual interpretations of culture, if becomes shared norm, extends it to organizational levels.

Organizational Culture and Organizational Effectiveness

Organization culture can also be studied from the perspective of competing values framework (CVF) of organizational effectiveness (Quinn & Rohrbaugh, 1983). Competing Values Framework (CVF) was later proclaimed by Quinn and colleagues as a Multidimensional Framework. Gregory et al (2009), said multi dimensional framework would establish culture and organizational effectiveness across several common dimensions and has been used for examining values and criteria’s for effectiveness. Multi dimension framework explains different types of culture and characteristics of those cultures. Each orientation represents a major model of organizational theory and is popular to link culture with organizational performance (Denison and Spreitzer, 1991). Value orientation of framework helps in exploring deep structures of organizational culture, basi assumptions to compliance, motives, leadership, decision making, effectiveness, values and organizational forms.

Types of Organizational Cultures

Figure 1: Competency Value Framework by Quinn and Rohrbaugh



First dimension is related to organizational focus, with internal emphasis on well being and development of organizational members and external emphasis on well being and development of organization with in its environment.

Second dimension is related to preference to structure and represents contrast between “stability & control” and Change & flexibility”

1. Human Relations Model (Group Culture): The group culture defined by internal focus and high flexibility. Primary concern of human relations the goal is to maintain a harmonious group in organization based on core values, trust, belongingness and participation. Primary motivation is group membership, cohesiveness and attachment. Leaders / Managers facilitate continuous interaction by being supportive, considerate and participative to their employees. According to Denson et al., (1991), Gregory et al., (2009), criterion for effectiveness in this culture is commitment and development of human potential.
2. Open Systems Model (Development culture): This culture hopes to grow organization by changing and adapting to external environment. Culture fosters creativity amongst members, vision and view about future

and encourages risk taking. Organization hopes to garner new resources (Denison et al., 1991; Gregory et al., 2009).

3. Internal Process Model (Hierarchical culture): This culture puts emphasis on coordination, evaluation, uniformity and internal efficiency. Culture focuses on internal organizational stability. Motivating factors for organizational members are orders, security, rules and regulations (Denison et al., 1991).
4. Rational Goal Model (rational culture): Goal attainment is important value, that helps in controlling actions of organizational members. Motivating factors are competition and attainment of predetermined goals. Leaders tend to be directive, target oriented and provide functional support. The culture provide structure to organization and encourage employee productivity (Denison et al., 1991).

Out of these four forms of culture, the group culture tends to be more consistent predictor of organizational effectiveness. The rational culture is contrast of group culture and hierarchical culture can be contrast to development culture (Denison et al., 1991). Quinn proposed Balance culture, because it possesses the qualities of all the four it may provide best results and effective culture to the organization. Competing values framework, is the basis for culture typology of organization (Cameron & Freeman, 1991).

II. Research Method

The study employed survey design approach for being good at measuring employee perception towards organizational culture and organizational effectiveness / performance. Further the surveys are quantifiable and allows application of more sophisticated analytical tools techniques appropriate to the organizations (Xenos and Christodoulakis, 1997). This study collected people's perceptions of their organizational characteristics and organizational performance. The population in this study was primarily Indian organizations operating in India including Indian organizations having their operations abroad. Organizations were drawn from Private and public sector domain operating in manufacturing or services sector. Unit of analysis for this study is an organization. Organizations are differentiated on the basis of cultural (Schien, 1990), structural (Burns & Stalker), strategic characteristics (porter, 1980), innovation and performance.

A mix of web – based, mail surveys and wherever applicable hard copy of survey questionnaires were distributed. All these survey questionnaires were identical in their content, differing solely on the basis of their structure and format. In order to obtain employee perceptions, senior professionals having minimum 1 or more year of tenure in their respective organizations were chosen as respondent.

Initially the questionnaire was sent to employees of the Indian companies. Respondents were contacted through personal meeting, email or mail via Linked In, Facebook or through professional associations like CII, SCOPE member lists, through personal contact, friends and acquaintances. A total of 435 responses were received, among which 47 (11%) were direct responses filled by researcher in person or through its friends and accomplices, 105 (24%) were e-mail responses and 283 (65%) were web based responses. That constitutes a response rate of 7.72%. Out of 435 forms received only 405 were taken on records for Data treatment as 30 respondents forms were rejected during data cleaning process.

III. Instrument

Measuring Organizational Culture:

Items measuring organizational culture are Mission, Adaptability, Involvement and Consistency was adapted from Fey and Denison (2003). Denison and other associates like Mishra (1995), Neale (1996) and Fey (2003) have been developing measuring instrument for organizational culture through a series of empirical studies since 1990.

Four items / dimensions have shown convergence and discrimination in all studies. Fey & Denison's instrument having 36 items (with 9 items for each dimension) have found to have cronbach alpha of more than 0.70. In assessing construct validity, Fey and Denison (2003) found factor loadings ranging from 0.67 to 0.89 indicating adequate construct validity. In this study we have used three of these nine items per each dimension were selected, hence items were reduced to 12 items for each of the four dimensions.

Measuring Organizational Effectiveness / Performance:

Objective performance was not employed for many reasons. Wherever there is difficulty in obtaining data objectively or there is difficulty in accessing data publically, or data is unavailable or unreliable (Bergeron et al; 2004) subjective approach of collecting data is most appropriate. Powell (1992) has suggested that subjective measures of performance correlate well with objective measures.

Items measuring organizational performance came from Lee and Choi (2004). Perceptions on market share, profitability, growth rate, innovativeness and overall success of the organization in comparison to key competitors. These five items used in Lee and Choi (2004) were adapted from Deshpande, Jarley and Webster (1993) and Drew (1997). In Lee and Choi's (2004) study, the five performance measures showed high

reliability (Cronbach's α) 0.87. Factor analysis results in their study showed that the factor loadings on all five items were above 0.70 demonstrating very high construct validity.

Analysis:

The AMOS (Analysis of Moment Structures) software program was used to Conduct SEM. AMOS enables you to specify, estimate, assess and present models to show hypothesized relationships among variables. AMOS helps in building model more effectively compared to Multivariate statistics techniques. We can choose between graphical interface or non graphical, programmatic interface. Structural Equation Modelling (SEM) is easy to use and lets you easily compare, confirm and refine models.

Structural Equation Modelling is gaining importance in social sciences and applied psychology as it provides for comprehensive means for assessing and modifying theoretical models (Anderson & Gerbing, 1988). Structural equation modelling is used to explain the pattern of variables that are measured by observable indicators (Diamantopoulos, 1994). It is very suitable as it analyses multiple variables simultaneously, measures overall fit of model developed and also is helpful in explaining the relationship between various variables (Kline, 1998). Structural Equation Modelling has specific advantage over multiple regression and path analysis on two accounts: i) It can examine multiple relationships and ii) it can explain effects of measurement error in multiple/ multi-item variables whereas regression assumes perfect measurement and iii) SEM allows variable to correlate whereas regression adjusts for other variables in the model. Joreskog and Sorbom, 1984, said Structural Equation Modeling (SEM) consists of two parts assessing confirmatory measurement models (factor analysis) and assessing confirmatory structural models (path analysis); path analysis with observed variables and path analysis with latent variables. Factor analysis is good tool to measure relationship between measures that are observed and various constructs (Anderson & Gerbing, 1988). The path analysis on the other hand specifies the causal relations among the latent constructs (Anderson & Gerbing, 1988). Anderson and Gerbing had suggested to use Structural Equation Modelling (SEM) for measuring models first and then to examine the structural models as if measurement models do not have an acceptable level of uni-dimensionality, this could then give feedback for development of structural models better (Anderson & Gerbing, 1988).

In this study we present only the first step process of the recommendation of Anderson and Gerbing, we had adopted single step procedure approach to apply Structural Equation Modelling (SEM). A Measurement Model was assessed by observing variables that were associated with latent constructs. There were two latent variables in this research study: Organizational Culture and Organizational Performance. Therefore, first measurement model was developed, established & investigated, examined and assessed.

In assessing model fit, six indices were employed: chi-square (χ^2), Bentler and Bonett's (1980) non normed fit index (NNFI), Bentler's (1990) comparative fit index (CFI), Joreskog and Sorbom's (1989) goodness of fit index (GFI), adjusted goodness of fit (AGFI), and root mean square residual (RMR).

Chi-square can be used to evaluate a relationship between two categorical variable. It measures the overall fit of model to the data. It measures the distance between the sample correlation matrix and the fitted correlation matrix (Joreskog, 1993). Non normed fit index (NNFI) compares a model with null model while considering degrees of freedom (Yang, Watkins, & Marsick, 2004). The comparative fit index (CFI) compares the degree of fit between the hypothesized and null measurement models (Yang et al., 2004). Joreskog and Sorbom's (1989) goodness of fit index (GFI) and adjusted goodness of fit (AGFI) measure how much better the model fits the data compared with no model at all (Joreskog, 1993). GFI is based on the amount of variance accounted for in the model and AGFI adjusted GFI for the number of parameters and the sample size (Joreskog, 1993). Root mean square residual (R...M:R) measures the average of the fitted residuals and it also provides information about the overall fit of the model (Joreskog & Sorbom, 1989). As a rule of thumb, values above 0.90 in NNFI and CFI (Hox & Bechger, 1998) and above 0.80 in GFI and AGFI (Jacob, Dolmans, Wolfhagen, & Scherpbier, 2003) are regarded as evidence of a good fit. Evidence of a good fit for RMR are values less than 0.07 (Jacob et al., 2003).

IV. Findings and Discussion

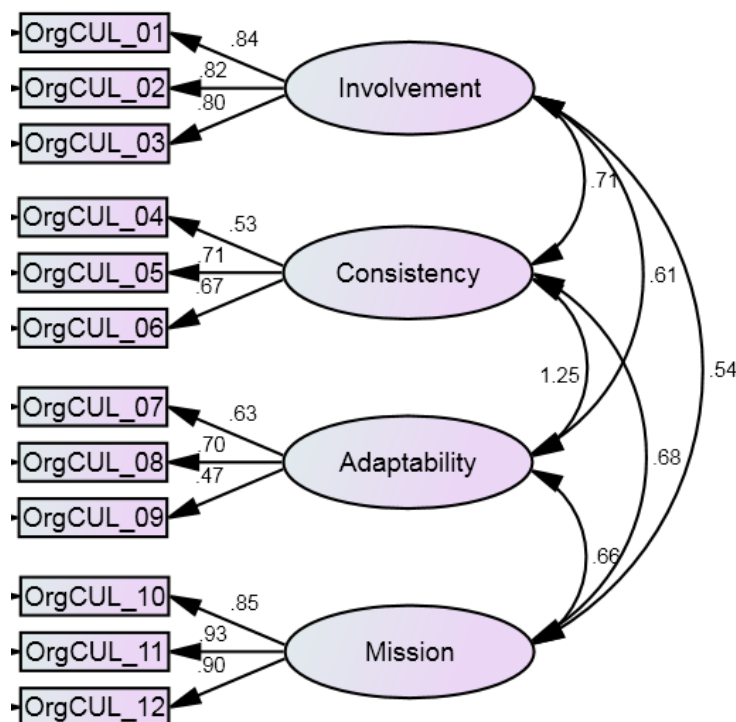
Results of measurement models are reported in this article. Since the items were drawn from different streams of researches and studies hence it was important to conduct the Cronbach's coefficient alpha (α) Test. Cronbach's coefficient alpha (α) was calculated to determine the reliability of measurements used to assess the constructs. The confirmatory measurement models were assessed to evaluate the construct validity of the measurement instrument. We discuss below the reliability of measures of each construct and the strength of measurement model of each latent construct. For each measurement models two groups indices were shown: First, Factor loadings between each measurement items and its underling construct and second, the overall fit indices of the measurement model. Table 3 summarizes the presentation of each of the two measurement models along with the fit indices and the reliability of all the two constructs.

1. Organization Culture measurement Model

Measurement model examined the relationships between variable of organization culture which was theorized to have four sub constructs: involvement, consistency, adaptability and mission. In terms of reliability, reliability cronbach’s alpha (α) for overall construct of organization culture was 0.903; for involvement 0.861; for consistency 0.661; for adaptability 0.589; and for mission 0.921. Sub constructs involvement and mission show relatively high reliability for organization culture at 0.861 and 0.921 respectively. Amongst the items that measured the organization culture all the four sub-constructs showed “corrected item – total correlation” of more than 0.5 (and none less than 0.2) except item OrgCUL_08 (0.478).

Figure 2, below presents the standardized estimates for a measurement model and its 12 measurement items. As can be seen from figure2, the involvement sub construct showed high factor loading (ranging from 0.80 to 0.84), Consistency sub construct showed moderate factor loading (ranging from 0.53 to 0.71), Adaptability sub construct showed moderate to low factor loading (ranging from 0.47 to 0.70) and Mission sub construct showed very high factor loading (ranging from 0.85 to 0.93). Therefore we can say that involvement, consistency, adaptability and mission had shown high construct validity and reliability. Correlations between four hypothesized dimensions of Organizational Culture were more than 0.54. Overall the proposed four dimension measurement model of Organizational Culture (Figure 2) tends to fit the data moderately well as the six fit indices are all at acceptable level NFI 0.792, CFI 0.803, GFI 0.787 all above 0.7 (close to 0.8 level), moderate AGFI 0.654 (near 0.70) and RMR at 0.160. Chi Square (CMIN) 690.974, df 48 $P < 0.01$.

Figure 2: Measurement Model of Organizational Culture (Involvement, Consistency, Adaptability and Mission)

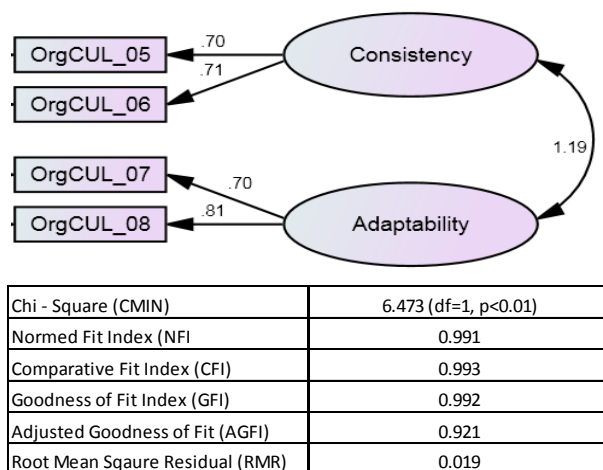


Chi - Square (CMIN)	690.974 (df=48, p<0.01)
Normed Fit Index (NFI)	0.792
Comparative Fit Index (CFI)	0.803
Goodness of Fit Index (GFI)	0.787
Adjusted Goodness of Fit (AGFI)	0.654
Root Mean Square Residual (RMR)	0.160

However, during Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis, the pattern matrix that we derived for measurement model organizational culture, sub construct Involvement and Mission was totally eliminated from measurement model and retained partial items measuring sub construct Consistency and Adaptability having two items each. But minimum criteria of having minimum three items measuring a construct were met. Figure 3, shows final measurement model of organizational structure. Cronbach Alpha (α)

decreased slightly from 0.903 to 0.856, not affecting the reliability of measurement model organizational culture too much. All items that measured the organization culture showed “corrected item – total correlation” of more than 0.667, improving construct validity and reliability. Factor loading of the Consistency sub construct remained high (ranging from 0.70 to 0.71) and factor loading for sub construct too ranged high from 0.70 to 0.81. Overall the two dimension (Consistency and Adaptability) measurement model of Organizational Culture (Figure 3) tends to fit the data very well now as the six fit indices are all at acceptable level NFI 0.991 (increased from 0.792), CFI 0.993 (increased from 0.803) , GFI 0.992 (increased from 0.787) all above 0.9 (indicating very good fit), very high AGFI 0.921 (increased from 0.654) and RMR at 0.019 (decreased from 0.160) less than acceptable level of 0.04. Chi Square (CMIN) looked more favorable at 6.473 df =1 P<0.01.

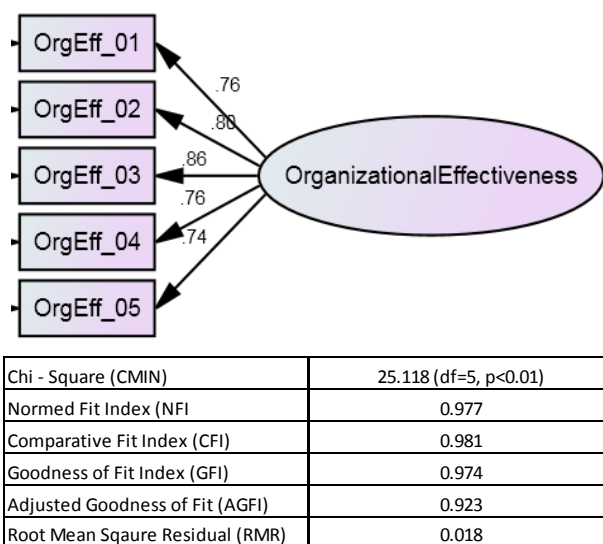
Figure 3: Measurement Model of Organizational Culture (Consistency and Adaptability)



2. Organizational Effectiveness Measurement Model

The second measurement model examined the relationship between measures of organizational effectiveness. Internal consistency of organizational effectiveness was measured at cronbach’s alpha (α) value= 0.888 and corrected item correlation of all items in Organizational Effectiveness were 0.69 or more, signifying measurement scale to be effective in terms of its reliability. Figure 4, presents standardized estimates for measurement model of organizational effectiveness with 5 measurement items (questions 1.1 to 1.5 in Appendix A). As can be seen from figure 4 the factor loadings ranged from 0.74 to 0.86 showing high construct validity. Chi Square CMIN 25.118, df 5 and p <0.01. The overall fit indices for the model are measured from moderate to high (NFI 0.977, CFI 0.981, and GFI 0.974 were above 0.90, AGFI 0.923 above 0.80 and RMR 0.018 below 0.04).

Figure 4: Measurement Model of Organizational Effectiveness



To summarize all the constructs and sub – constructs in the study, after re-specification of organizational culture, achieved a moderate to high level of construct reliability and validity. A summary of the fit indices of all the five measurement models and their reliabilities are shown in Table 3.

Table 1: Fit Indices of Measurement Model and Reliability of Constructs

Constructs	χ^2 (CMIN)	df	p	NFI	CFI	GFI	AGFI	RMR	Cronbach's Alpha (α)
1 Organizational Culture	6.473	1	< .001	0.991	0.993	0.992	0.921	0.019	0.856
4 Organizational Effectiveness	25.118	5	< .001	0.977	0.981	0.974	0.923	0.018	0.888

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