Chapter 8
Validation of Model:
The Process for Tier–I Variables

ABSTRACT

Tier-I influencers form the baseline for the modeling process. These influencers aim to capture and measure collective orientation of organizational preparedness for IT acquisitions. This approach includes all the management principles (one of the two frontiers of the model, i.e., management science and computing science). Tier-I influencers include stakeholders in operational, tactical, and strategic layers in the organization as important influencers of the acquisition process, and the proposed model captures their contributions. The model considers it important to capture perceived benefits of IT acquisitions, climate in the organization for taking collective decisions in planning and policy driven issues, capabilities in managing IT projects and IT vendors, motivation of users in the organizational hierarchy, user contributions in reflecting organizational deliverables in IT enabled processes, and mapping expected contributors of successful IT acquisitions. In this chapter, quantitative methods are used for measuring and validating collective contributions of all the stakeholders.

RELIABILITY TEST OF TIER-I VARIABLES

As explained earlier the model argues in favour of having overall and proactive engagement of all stakeholders in the acquisition process. In pre-acquisition phase of the acquisition process, the model expects involvement of employees of the acquiring organization across all the three layers (Strategic, Tactical, and Operational) to coordinate, collaborate and arrive at a common point of agenda in terms of establishing better ambience for IT acquisitions, display and pursue standards in managing internal processes and formulating overall strategy for accepting a new scenario that is likely to emerge during and post-acquisition phases (Nonaka, 1988; Pearce & Robinson, 1996). It is however, important to note that organizations being generally hierarchical in nature, the scales used for measurements need to

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be carefully chosen because of overall goals that employees ion different layers pursue (Kanter, 2000; Basili et al., 1994; Mintzberg & Lampel, 1988). Despite these inequalities in goals and aspirations, organizational priorities need to be given the priority through appropriate methods and thus various scales need to be use to assess the scope for improvement and establish overall preparedness in the organization to bring positive changes in the climate, instill motivations among all employees and prepare them for IT acquisitions. This process needs use of carefully chosen measurement tools for assessment of reliabilities of the results obtained since stratifies samples (in this model all the samples are employees at various levels) are expected to holistically contribute to the organization's overall pre-acquisition preparedness (Nunnally, 1978; Pedhazur, 1997; Rietveld & Van Hout, 1993; Spector, 1988; Carmines et al., 1999; Field, 2000; Mcliver & Carmines, 1994; Minieak, et al, 2001). In this chapter various tools and methods are used to assess the reliabilities data captured through the sampling process discussed earlier.

Table 1 provides the details of reliability-test of the variables done through "Cronbach alpha" and SPSS-10.1 has been used for the purpose.

It may be noted that Cronbach alpha coefficient (α) for the variables that provides for internal consistency, lies between 0.65 and 0.89. It is noted that alpha of around 0.7 could be taken as an acceptable figure for further Validation. In only two cases reliability has been found to be below 0.7, but is close to it. Other validation tests are conducted for tier-I variables progressively in this chapter.

VALIDATION OF PREDICTORS

Since correlation matrices are important for understanding multi-dimensionality (even if Cronbach alpha shows high reliability), these are made available for Validation as below.

Strategic User Preparedness (U1)

Table 2 records "Pearson correlation coefficient" uniformly and approximately in the same range for all the variables. This recommends that all the variables do not display multi-dimensionality.

Question U102 has the lowest communality, least corrected question-total correlation and is the weakest question. It is verifiable through alpha-if-question-deleted value which shows highest reliability of 0.8669. This is followed by the scree-plot as shown in Figure 1 and eignvalues in Table 3. It is noted to have single factor for these questions (63.315 percent). However, since Cronbach alpha does not improve much by deleting U102, and there is no multi-dimensionality; all the questions were retained for the purpose.

As regards sampling plan, Kaiser-Meyer-Olkin (KMO) and Bartlett's test measures were used to confirm question validity for U1. Since value of KMO is 0.860 (expected value to be > 0.5) and Bartlett's test of specificity is significant (i.e. associated probability should be <0.05), U1 is found to be in conformity with requirements.

Tactical User Preparedness (U2)

Table 4 records "Pearson correlation coefficient" uniformly and approximately in the same range for all the variables. This recommends that all the variables do not display multi-dimensionality and are in conformity with reliability Validation.

Reliability of U2 variable is of 0.83. Question U202 displays the least communality followed by question U206 vide Table 5. Varimax method of rotation showed that there is one component (vide Table 6) and the eigenvalues along with scree plot (Figure 2) supported this finding. Corrected-Question-Total correlation values indicated U206 having the least followed by U205 and U204. Since there was no improvement in reliability by factoring and supported by alpha-if-question-deleted, none of the questions were extracted. This is supported by Pearson's correlation analysis