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Abstract

It is now well established that firms need to make significant changes to organizational processes to derive advantages from the deployment of Information Technologies (IT). The strength of the interface between Information Systems providers (the IS group) and their users in organizations is a critical determinant of the firm's ability to visualize, design and deploy appropriate IT solutions and make the necessary organizational design changes to utilize the investments in IT (Davenport 1992). While the creation of partnerships between IS groups and their users has often been highlighted as important to ensure effective IT implementation (Lasher, Ives, Jarvenpaa 1991), the critical dimensions along which the two groups need to be convergent and the impact of convergence on outcomes for users has received little attention. Using the theoretical lens of role theory, we examine the impact of convergence in perspectives on six key issues between IS groups and the users that they serve in three large organizations. Our results provide empirical support for the view that convergence in the perspectives of IS and user groups is associated with increased levels of Service Quality. One contribution of this study is the explication of key issues on which convergence of perspectives between IS and User groups is central to the improvement of the quality of services provided by the IS group.

Introduction

Delivering quality IT service in organizations is fraught with considerable uncertainty stemming from the nature of the technology as well as the human issues surrounding design, implementation and operation (Robey, Farrow and Franz. 1989). The effective management of these issues requires high levels of collaboration between providers of IT products and services and user groups in organizations. Several researchers have indicated that collaborative action is enhanced by the creation of strong partnerships between these groups (Henderson 1990, Lasher, Ives and Jarvenpaa 1991). Central to the creation of partnerships is congruence in the perception of requirements and constraints of one group by the other and the existence of channels of communication and influence between the groups. The existence of both of these enhances mutually satisfactory adaptation through patterns of influence and negotiation, enabling IS groups to deliver products and services that users value.

The Role Theory Perspective

Role Theory, applied at the level of organizational groups, highlights the dynamics of interaction between interdependent dyadic groups in organizations, providing a conceptual framework to examine the nature of mutual influence and regulation (Katz and Kahn 1966). Each group influences the other to conform to its view of the *role*, the set of behaviors expected of the other group as a consequence of their participation in the organization. Change in role behavior occurs through iterative cycles of influence and responses to influences which lead to the next cycle of influence. The cycle of interaction is termed the *role episode*, consisting of a) one group's attempts to influence the other (termed *role sending*), b) the other group's perception of this influence (*role reception*), c) the consequent change exhibited in behavior and attitudes (*role enactment*) and d) the perception of *role enactment* by the other group and its comparison with the *expected role*. If *role enactment* is different from the *role expectation*, there is yet another *role episode* established.

The role episode is a dynamic phenomenon and each group engages in role sending and role reception till the perception of role performance of one group conforms to role expectations by the other (Figure 1). The overall outcomes of role sending and role behavior and reactions to role behavior in multiple role episodes determines the nature of the adjustment achieved (Katz and Kahn 1966). Role Theory is particularly appropriate to IS-User interactions as it not only highlights the adaptive nature of the IS-Line relationship but also the critical role of the unique perspectives of each group in determining responses to influence and communication. Where the frames of reference of the two groups are divergent as has been suggested in the case of IS and Line groups, role theory offers a mechanism to model the impacts of these differences on outcomes in relationships

Research Model and Hypothesis

The role episode model indicates that the enacted behavior on key issues and the perception of the same behaviors by the other group would match, in the equilibrium state, as divergence between them would be reduced in successive role episodes. We therefore hypothesize that significant differences between the perceptions of IS and User groups on key issues (that reflect systematic divergences in perspectives between the groups not resolved in role episodes) adversely affect outcomes in the relationship, specifically the perceptions of the quality of IT services delivered.

The Partnership Model (Henderson 1990) identifies a set of six key factors impacting the nature of the IS-User relationship. These are the nature of Mutual Benefits, the level of Commitment and Trust, the extent of Knowledge Sharing, the level of Distinctive Competencies and the Organizational Linkages between the two groups. (Please see Figure 2).

For each of these key factors in IS-User relationships, we consider the difference between the viewpoint of one group (that is a function of the role behavior) and the perception of these views by the other group (perception of role behavior) as indicating the extent to which the perspectives of the two groups have converged in role episodes. This approach is similar to that adopted to evaluate the level of convergence in other contexts e.g. in new product development (Lind and Zmud 1992).

We denote the IS group's perspectives as reported by the IS group as IS_{IS} and the User group's perception of the IS group's perspectives as US_{IS}. The gap in understanding of IS group's perspective by the User group is indicated by the absolute value of the difference between Is_{IS} and US_{IS}.

i.e. IS Gap (Gap in understanding of IS Group's perspectives)= $|Is_{IS} - US_{IS}|$.

Similarly, denoting the User Group's perspectives as reported by users as US_{US} and the IS group's perception of the Users' perspectives as IS_{US}, the gap in understanding of the Users' perspectives by the IS group is indicated by the absolute value of the difference between US_{US} and IS_{US}.

i.e. User Gap (Gap in convergence to user group's perspectives) = $|US_{US}-IS_{US}|$.

Methodology

We studied thirteen IS-User relationships in three large organizations in the aerospace, courier service and powerplant industries in UK. The IS-User interactions involved a mix of applications development, software support and infrastructural services. Using the key informant method, three managers drawn from each IS group and each Line group were administered an adapted version of a validated questionnaire (Cooprider 1990) to elicit their responses on a) *their* group's perspectives on the key issues of the Partnership Model and b) their perception of the *other* group's perspectives on the same issues. We sought responses from three managers from each of the IS groups to determine $IS_{IS,}$ and IS_{US} and responses from

three managers from each of the User groups to determine US_{US} and US_{IS}.. To measure the quality of services provided by the IS department, we used an adapted version of the Service Quality instrument (SERVQUAL) (Zeithaml et. al. 1990) that has been used as a measure of IS service quality (Pitt, Watson and Kavan 1995). The Service Quality instrument was administered to senior managers in each user group who had not participated in the Partnership survey. This separation of the respondents for the independent variable and the dependent variables was designed to eliminate the possibility of common methods bias. Data was collected from 96 managers in the study.

	ServQual
ISGap	0.065^{ns}
USGap	-0.67***
ISGap*USGap	-0.51**

Table 2: Gaps and Service Quality

*** p<.01, **=p<.05, ns=Not Significant*

Results

The measures used in the study demonstrated adequate psychometric validity. The absolute value of gaps and the level of Service Quality measured in the thirteen groups are provided in Table 1.

Group	ISGap	USGap	ISG*USG	ServQual
CY	0.64	0.32	0.2	-3.6
NW	0.95	1.43	1.36	-2.95
AD	0.27	0.59	0.16	-2.5
PC	1.97	1.38	2.72	-2.38
MB	0.29	0.43	0.12	-2.06
ID	0.31	0.46	0.14	-1.99
CE	0.14	0.14	0.02	-1.99

CB	0.22	0.4	0.09	-1.77
SP	1.04	0.47	0.49	-1.39
CS	1.11	0.09	0.1	-1.13
SD	0.01	0.18	0	-0.74
OP	0.79	0.31	0.24	-0.6
TC	0.49	0.04	0.02	0.2

Table 1: Levels of Gaps and Service Quality

The number of groups (13) is too small to perform parametric tests as most of these tests rely on assumptions of normality for their validity. In such cases, non-parametric tests are considered most suitable (Costner 1966). The Kendall's Tau Beta is a non parametric test that does not presume the existence of a normal distribution and we therefore use it to infer the level of association between ISgap, USgap and Servqual (the level of Service Quality provided by IS). The results of the correlational analysis are provided in Table 2. We observe a strong and significant negative correlation (-0.67, $p<.006$) between the magnitude of USgap and the level of Service Quality, supporting our hypotheses. However, the correlation between ISgap and Service quality is not significant, indicating that perceptions of quality are affected only where the IS group perspectives of the User group differ from the User group's perspectives but not the other way around. In addition, the correlation between the product of ISgap and USgap on ServQual is negative and significant (-0.51, $p<.04$), indicating an interaction effect between the gaps. This conclusion is strengthened by the low and non significant correlation between ISgap and USgap (Kendall's Tau Beta $=0.2^{ns}$).

The results of this study, though generally supportive of the hypotheses and in line with theoretical expectations, need to be interpreted with care on account of the small size of the sample and the inherent limitations of inferring causality using cross sectional methods.

Conclusions and Implications

The results of the study reinforce the view that the establishment of strong relationships with user groups is critical in delivering quality service. This study highlights that convergence on the six dimensions of the Relationship Model (Henderson 1990) is a significant factor impacting IS effectiveness as reflected in the quality of IS products and services delivered to users. Of the six dimensions of the model, the data indicate that a shared perception of the nature of social and informational linkages (the Organizational Linkage dimension) and a shared understanding of the ability of each group to influence the other (the Commitment dimension) are most important in affecting service quality perceptions. The signs of the gaps, whether they are positive or negative have a bearing on the nature of the action plans required to close gaps to improve IS service quality.

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