

Linking IS-User Partnerships to IS Performance: A Socio-Cognitive Perspective

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Abstract

The notion that effective relationships between groups improve coordination, cooperation and consequently performance has considerable appeal in a broad range of contexts. In particular, *partnerships* are viewed as critical organizational mechanisms enabling information systems groups and their clients within organizations to utilize existing information technology investments already in place and to tap the potential offered by information technologies. This paper proposes a theoretical model drawing from socio-cognitive theory, highlighting a convergence in perspectives on key issues between the groups as the mechanism underlying partnerships. Data from a survey of 671 managers on both sides of IS-User relationships in multiple firms provides support for the model and the hypothesized relationship between convergence in perspectives and the performance of IS groups. In particular, the results suggest that a convergent assessment of the perspectives of IS groups by Users significantly enhances the performance of IS groups. This paper is among the first efforts in the IS literature to use dyadic data provided by both IS and User groups to understand IS-User relationships.

Keywords: IS-User Partnerships, Social Cognition Theory, Perspective Taking, IS Performance

Introduction

As organizations increasingly re-evaluate the traditional logic of establishing hierarchical control mechanisms to achieve coordination between sub-units, the alternative of creating flexible, cooperative lateral working relationships between interdependent departments has considerable appeal. Studies of relationships between IS groups who provide IT products and services and their clients, often termed the '*Line*' groups suggest that cooperative arrangements such as *partnerships* between IS and User groups significantly enhance outcomes on a variety of dimensions (Henderson 1990, Lasher, Ives and Jarvenpaa 1991). The flexibility and adaptability of such mutually regulated mechanisms are advantageous in contexts such as that faced by IS providers and clients in organizations where participants can discover and fashion efficient ways of using and deploying information technologies during ongoing task execution. Such IS-User partnerships are critical components of organizational efforts to effectively exploit the potential of information technologies (Broadbent and Weill 1993, Weill 1992,). An understanding of phenomena underlying IS-User partnerships is clearly imperative for IS research and practice.

The bulk of prior research studies on inter-firm and intra-firm partnerships in general, provides case based evidence or conceptual frameworks on issues such as vulnerability and risks from partnerships and articulate the nature of management processes in specific instances that led to outcomes observed (Johnston and Lawrence 1988, Konsynski and McFarlan 1990, Lasher, Ives and Jarvenpaa 1991). Examinations of IS-User partnerships are similarly focussed on providing rich, contextual descriptions of the phenomenon, identifying common themes and proposing intuitive models to guide action and further research (Henderson 1990, Lacity, Wilcocks and Feeny 1995). A recent paper by Lee and Kim (1999) examined the association of partnerships and success in outsourcing (Lee and Kim 1999). In spite of these efforts, a theoretically grounded fundamental understanding of close intergroup relationships is still lacking. In this paper, we move towards rectifying this shortcoming by drawing on socio-cognitive models of group functioning and argue that the extent to which an intergroup relationship is a partnership is determined by the level of consensual views on key issues between members of the IS and User groups. We also propose that the level of partnership reflected in effective perspective taking between IS-User groups is positively related to favorable outcomes such as the performance of IS providers. We examine the support for these hypotheses in data collected in a survey of 680 IS and User managers participating in 95 IS-User relationships in 7 large firms.

In the sections that follow, we briefly review the literature on partnerships and propose the socio-cognitive model of convergence of perspectives in partnerships. We then discuss the factors defining IS-User relationships and propose hypotheses relating convergence on key factors to relationship outcomes. This is followed by the operationalization of constructs and the description of the field study to examine these hypotheses. We conclude by discussing the results and implications for IS-User relationships, outlining areas for future research.

What are Partnerships?

Research in multiple disciplines highlights partnerships as *patterns of cooperative interaction between independent actors* (Anderson and Narus 1990, Lasher, Ives and Jarvenpaa 1991). Partnerships are viewed as "working relationship that reflects a long-term commitment, a sense of mutual cooperation, shared risk and benefits, and other qualities consistent with concepts and theories of participatory decision making" (Henderson 1990, page 8). Partnerships between the IS group and business units are considered critical relationship-specific assets that allow firms to derive competitive advantages through information technologies. The ability to derive benefits from investments in IT in the face of the rapid pace of change in underlying technologies and the considerable complexity of implementing them in organizations hinges largely on the effectiveness of the relationship between information technology providers and the functional areas of the business (Rockart, Earl and Ross 1996, Reich and Benbasat 1996). A field study of coordination mechanisms in organizations successful in consistently leveraging their IT investments reveals that partnerships between business and IS managers were vital to their successes with information technologies (Clark, Cavanaugh, Brown and Sambamurthy 1997). One approach to address the issue is the building of effective interpersonal relationships between the CIO and the CEO of the firm (Feeny, Edwards and Simpson 1992). Another approach is the establishment of multiple linkages across the boundaries of the two groups to foster a broader mutual understanding of IT concerns by business unit personnel and of business unit concerns by IT personnel (Henderson 1990, Weill 1992).

Despite the allure of well publicized benefits from IS-User partnerships, they are recognized as being as difficult to establish, sustain and manage. The complexity of partnership building efforts in the IS-user context is compounded by the lack of an established model of partnerships and a lack of clarity on behaviors required of IS and User personnel in such relationships (Brown, MacLean and Straub 1996). A better understanding of IS-User partnerships and their influence on performance are therefore essential to inform both research and practice in the management of information systems in organizations.

Socio-Cognitive Model of Partnerships

The concept of social cognition represents a synthesis of principles in psychology and social development related to the interpretations of social situations by individuals and groups and is an approach linking social structure to cognitive structure (Carley 1986). The concept of social *perspective taking* is an important component of social cognition underlying sensemaking, comprehension and action. *Perspective taking* defined as the "cognitive ability to understand the point of view of another" (Long 1993), particularly referring to the discerning of the viewpoints of a partner in an interaction, is conceptualized both at the level of the individual as well as the level of the group. A considerable body of literature examining the phenomenon at the individual level highlights the link between *perspective taking*¹ and behaviors contributing to effective relationships such as the use of integrative negotiation strategies and mutual adjustment in marriages and close personal relationships (Long 1993, Harvey and Omarzu 1997). Similarly, *convergence in perspectives* from effective *perspective taking* between groups of individuals is positively related to effective conflict management (Sessa 1996) and also creates the context for effective communication and knowledge sharing (Boland and Tenkasi 1995). *Perspective taking* involves an understanding of how the partner would perceive specific issues and influences the level of empathy between partners (Menna and Cohen 1997). Empathy, an important dimension of service quality in a variety of service contexts including relationships between IS and User groups (Pitt, Watson and Kavan 1995).

Researchers in management strategy and organizational behavior have examined the influence of shared cognitive structures developed through effective *perspective taking* by participants on phenomena at both the organizational and institutional levels. For instance, Ginsberg (1990, 1994) suggests that the belief systems shared by top management teams determines the corporate strategy of the firm. Porac, Thomas and Baden-Fuller (1989) relate the commonality of perspectives among industry participants to the competitive structure of the Scottish knitwear industry. Similarly, Reger and Huff (1993) highlight the importance of shared managerial perceptions in defining strategic groups in the banking industry.

¹ The term *perspective taking* is used in the literature for both for the act (of perceiving a partner's perspective) and for positive outcomes (success in perspective taking). To distinguish between the two, we henceforth use *perspective taking* to refer to the action and the term *perspective convergence* to refer to outcomes of perspective taking. We recognize that there can be different levels of success in *perspective taking* that would be reflected in differences in the extent of *perspective convergence*.

This view of *perspective taking* as being fundamental to effective relationships parallels contemporary views on factors central to successful outcomes in *deep interdependent* intergroup relationships (Sheppard and Sherman 1998). Defining *deep interdependent* relationships as those that are critical to performance of both parties and involving a high level of reciprocal dependence between groups, Sheppard and Sherman 1998) argue that the risk of *misanticipation* or *misjudgment*, stemming from a mistaken perception of the perspectives of the other party is the central hazard in such relationships. Effective perspective taking (reflecting a greater *convergence in perspectives* and similarity in cognitive structures) between organizational groups mitigates this hazard and enables effective coordination. In addition, evidence suggests that enhancing *perspective convergence* improves a range of important processes such as information seeking, enables accurate problem diagnosis and issue interpretation and enhances decision making - all characteristics attributed to partnerships (Yeates and Selman 1989).

In the same vein, we propose *the extent of perspective convergence* as the defining construct for partnerships, in effect, suggesting that the extent to which the relationship is considered to have characteristics commonly attributed to partnerships be defined by the level of *perspective convergence* in the relationship. Thus conceptualized, relationships can be viewed as arrayed on a continuum, depending on the level of *perspective taking* by each party with respect to the partner. Relationship where there is a high level of *perspective taking* would be viewed as reflecting high levels of partnership between the groups while relationships where there is a low level of *perspective taking* as indicative of low levels of partnership.

We can thus view partnerships in the context of IS and User context as relationships where IS and User groups are able to engage in a high level of perspective taking. When each group clearly understands the perspective of the other group in intergroup interactions, partners can accurately interpret and anticipate each other's actions and evolve advantageous patterns of resource combinations through adaptive coordination (Lounaama and March 1993). As each group works to achieve both their individual and joint goals in the interaction, the level of *perspective taking* is directly related to the effectiveness of communication, the nature of negotiation, bargaining and conflict resolution processes that occur between the groups.

IS-User Partnerships and Perspective Convergence

A characterization of relationships in terms of the level of *perspective convergence* between partners is particularly appropriate in the context of IS-User relationships. While the relationship requires considerable collaborative action by

both groups, IS and User groups often have inherently varying approaches to issues and frames of reference (Newman and Robey 1992). Information systems designers tend to focus on the technical aspects of their design, often neglecting the implications of these design choices for users. Many system design failures have their roots in inappropriate choices by systems designers that introduced characteristics that made them unacceptable in the social system (Hirscheim and Kling 1989). The understanding of the IS group's perspectives by users and vice versa, would enable the groups to explore alternatives that satisfy the requirements of both technical and social design perspectives, improving outcomes for both groups. For instance, the ability of customers to take advantages of the IS provider's capabilities is aided by the customers' understanding of the knowledge and experiences that the IS providers possess. In partnerships, customers are likely to be able to express their problems in a manner that the IS group can effectively address. Similarly, the IS provider's accurate comprehension of customer's preferences would improve the ability of providers to craft solutions that fit with their customers views of the task and further, anticipate problems customers may encounter in using them. *Perspective convergence* enhances the ability of the one group to truly understand the motivations and reasoning underlying the actions of the other group. This not only encourages meaningful dialogue to achieve mutually acceptable resolutions to differences but also creates the context for more innovative uses of information technologies (Boland and Tenkasi 1995).

Our approach complements and enriches prior IS research applying socio-cognitive theories to phenomena pertaining to IS design, implementation and use in organizations. Orlikowski and Gash (1994) propose that the outcomes of technology introduction and use are linked to the similarity of views on technology: *technology frames* of users and developers. They suggest that *frame congruence* reflects the sharing of understanding of different aspects of the technology between designers and users and that congruence aids the realization of the benefits of technology introduction in the organization. Conversely, a lack of congruence in the frames is considered to be detrimental: "the incongruence of frames provides an interesting explanation of the difficulties and unanticipated outcomes associated with the technology implementation" (Orlikowski and Gash 1994, page 175). However, their study does not discuss the formation of the cognitive frames of designers and users. By focusing on perspective taking by IS and User groups, we thus fill the gap, articulating the processes contributing to frame creation. Similarly, while (Lind and Zmud 1992) link the convergence in understanding on key issues between providers and users to innovativeness in IT use, our explication of perspective taking articulates the mechanism underlying the process of convergence. Also, the *perspective*

taking process we discuss provides a theoretically grounded mechanism underlying link between consensual perspectives of IS and User groups and their links to performance suggested by Nelson and Coopriider (1997). Further, while most discussions of partnership recognize the dyadic nature of interactions (e.g. Nelson and Coopriider 1997), no study in the IS literature to date explicitly uses a theoretical and methodological approach combining IS and User group perspectives to inform the nature of the intergroup relationship. The closest prior study that approaches this desirable ideal (Nelson and Coopriider 1997), in spite of the strong emphasis on the dyadic nature of the phenomenon uses data derived from the report of just the IS group. This study thus fills a critical gap in our understanding of IS-User relationships by adopting a dyadic theoretical model and a dyadic methodological approach to examine IS-User partnerships.

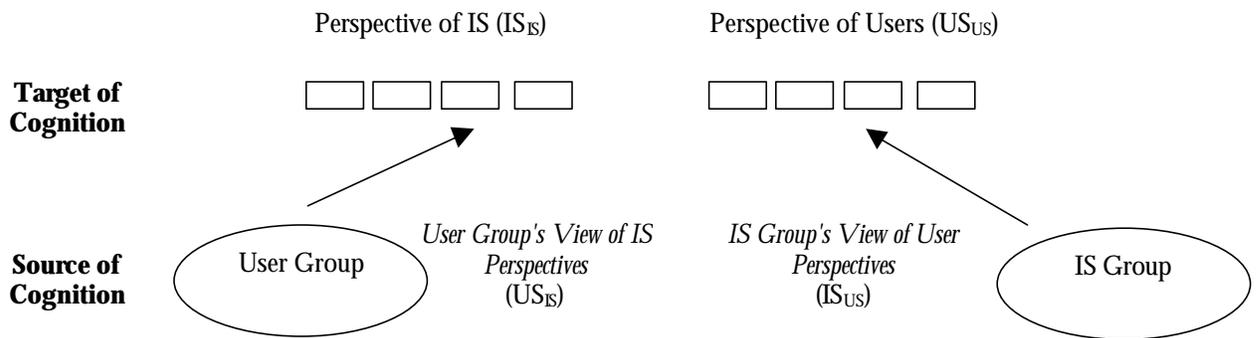


Figure 1a: Perspective Taking by Users
 Deficiency in Convergence: $IS\ Gap = IS_{IS} - US_{IS}$

Figure 1b: Perspective Taking by IS
 Deficiency in Convergence: $User\ Gap = US_{US} - IS_{US}$

The notion of *perspective taking* in a dyadic setting e.g. between an IS and a User group involves two phenomena: *perspective taking* by the IS group with respect to users and *perspective taking* by Users with respect to the IS group. Two types of *perspective convergence* are involved: a) *Perspective taking* by the User group, leading to the *perspective convergence* and appreciation of IS group perspectives by the User group and b) *Perspective taking* by the IS group, leading to *perspective convergence* and appreciation of User group perspectives by the IS group. These are illustrated in figures 1a and 1b.

Using the notation US_{US} and IS_{IS} to represent the User and IS groups' perspectives on specific issues in the relationship and IS_{US} and US_{IS} for the IS's and User groups' views developed as a result of *perspective taking* with respect to the partner, we define *gaps* or a *deficiency in perspective convergence* as:

User gap = $(US_{US}-IS_{US})$, i.e. the difference between the User group's perspectives and the IS group's assessment of the User group's perspectives.

IS gap = $(IS_{IS}-US_{IS})$, i.e. the difference between IS group's perspectives and the User group's assessment of the IS group's perspectives.

The *User gap*² is the discrepancy between User group views and the IS group's *perspective taking* with respect to the Users.

When there is a high level of convergence as when the perspective taking is effective, there would be minimal differences between the User group's perspectives (US_{US}) and IS group's view of the User group's perspectives (IS_{US}). The User gap in such a relationship would consequently be small. Analogously, the *IS gap* is the discrepancy between the perspective of IS groups and the User group's *perspective taking* with respect to the IS group.

To illustrate, let us consider the gaps that might exist in relationships around the distinctive expertise that each group possesses.

a) User gap in Distinctive Competencies is the difference between:

- the **User group's perspective** on the level of skills and experience that their own group possesses and brings to the relationship (US_{US}) and
- the **IS group's perspective** on the level of skills and experience that the User group possesses and brings to the relationship (IS_{US})

A high level of perspective convergence is indicated by a small 'User gap'.

b) Similarly, IS gap in Distinctive Competencies is the difference between:

- the **IS group's perspective** on the level of skills and experiences that their own group possesses and brings to the relationship (IS_{IS}) and
- the **User group's perspective** on the level of skills and experiences that the IS group possesses and brings to the relationship (US_{IS})

A high level of perspective convergence is indicated by a small 'IS gap'.

Where the level of convergence is low, the perspectives of the IS group (IS_{IS}) and the IS group's perspective as perceived by clients (US_{IS}) are likely to be quite divergent, a situation indicated by a high IS gap³.

Qualitative data collected from observations of boundary spanners at the IS-User interface provides support for this view of convergence as being fundamental to partnerships between groups. The evidence suggests that effective IS-user relationships are characterized by the sensitivity of participants to the views of partner groups and high performing managers at the interface are acutely sensitive to the socio-political processes required to achieve a convergence in perspectives. Managers at the interface of these groups are seen working to establish convergence through coalition building and mechanisms that create greater transparency of the actions, intentions and priorities of one group to the other (Subramani, Iacono and Henderson 1995). For instance, unless the IS has a clear perception of the User group's business priorities and the future plans, IS personnel are likely to fail to recognize opportunities to leverage emerging technology to meet client needs, focusing instead on other areas that might be of lesser significance to users. The ability of groups to evolve mechanisms to create such perspective convergence in their interaction is one of the mechanisms underlying the broad notion of 'group intelligence' (Williams and Sternberg 1988). In general, these arguments suggest that the magnitudes of gaps in convergence are inversely proportional to the level of outcomes in the relationship. This leads to the following propositions relating the magnitude of IS and User gaps to outcomes in IS-User relationships:

P1: The magnitude of the IS Gap is inversely related to the level of outcomes in IS-User relationships.

P2: The magnitude of the User Gap is inversely related to the level of outcomes in IS-User relationships.

Operationalizing Gaps in IS-User Relationships

While socio-cognitive theory suggests that gaps in *perspective convergence* are negatively related to performance outcomes in relationship, the specific factors in the working relationship around which convergence is important are determined by the context of the intergroup interaction. A key question that needs to be answered is "What are the factors in the IS-User relationship on perspective convergence between IS and User groups is necessary?"

In IS-User interactions, the partnership model (Coopridge 1990, Henderson 1990) highlights six factors as influencing effective intergroup interaction: Relationship Benefits, Commitment, Predisposition, Shared Knowledge,

² An easy mnemonic for the terminology: User gap stems from the *inexactness in the perspective taking by the IS group with respect to **users***, IS gap is the *inexactness in the perspective taking by Users with respect to the **IS***.

Complementary resources and Organizational Linkages. The factors of the partnership model were evolved from qualitative interviews with executives in relationships (Henderson 1990) and a robust set of items are available to measure the determinants of partnership (Coopriider 1990). This model has been reviewed favorably in prior research (Lasher, Ives and Jarvenpaa 1991) and a subset of the determinants has been employed to examine phenomena in IS-User relationships (Nelson and Coopriider 1996). We therefore draw on the factors identified in the partnership model to operationalize convergence in IS-User relationships and examine the links between perspective convergence and relationship outcomes.

We briefly discuss each of the determinants of partnership below and consistent with the theoretical discussion in the earlier section, propose hypotheses relating the influence of gaps in these determinants on outcomes.

Overall IS- User Partnership: Partnerships between IS and User groups are viewed as an overall construct influenced by the level of convergent perspective taking on six factors: relationship benefits, commitment, predisposition, shared knowledge, distinctive competencies and organizational linkages (Henderson 1990). A greater level of convergence in perspectives across the six determinants, reflects effective perspective taking and is likely to be associated with effective management of the relationship and enhanced IS performance. In contrast, high levels of gaps across all the determinants, reflected in a high overall partnership gap are likely to be associated with contexts characterized by imperfect understanding of client needs by IS providers and ineffective negotiation strategies by both groups – affecting IS performance adversely. This leads to the following hypotheses:

H1a: *IS gaps in partnership are inversely related to IS performance in the relationship.*

H1b: *User gaps in partnerships are inversely related to IS performance in the relationship.*

We now discuss the six determinants of partnership identified by Henderson (1990) and the link between perspective convergence on these dimensions and IS performance.

Mutual Benefits: In general, the benefits from the relationship to participating groups influences the nature of intergroup relationships since the value placed on a relationship is directly related to the level of benefits derived from it. The importance role of relationship benefits in IS-User relationships is underscored by shared client and provider initiatives to terminate the relationship and consider IT outsourcing when the level of relationship benefits is perceived to be unsatisfactory (Lacity and Hirschheim 1993).

³ Here on, we continue our discussion of convergence in terms of gaps. Gaps are inversely related to the extent of Linking IS-User Partnerships...

In the IS-User context, the benefits to groups from the relationship include more innovative uses of information technology and a reduction in the risks associated with technology deployment (Henderson 1990). Most of the important benefits are often 'soft' and not readily quantifiable (Ross, Beath and Goodhue 1996). This includes benefits such as improved job satisfaction for users, and enhanced innovation by leveraging IT capabilities. Considerable non-financial benefits also accrue to IS groups fostering effective relationship with users such as the ability to establish organization wide standards that reduce costs and training efforts, judicious use of resources and greater flexibility in scheduling limited resources (Subramani, Iacono, Henderson 1995). A realistic perception of each group's benefits by the other plays an important role in enabling mutual adjustment in relationships. Perspective taking plays an important role in each group inferring the benefits to the other group, as many of them are 'soft' and likely to involve subjective perceptions and judgment. Perspective convergence thus enables advantageous mutual adjustment to let each group act in ways that maximizes joint outcomes rather than maximizing only individual group goals. In the presence of such an orientation, IS performance is improved as the IS group is not only likely to serve the users better but is also helped by users to be efficient in the process. On the other hand, in contexts with low levels of perspective taking and minimal perspective convergence, either in the form of IS gaps or User gaps, IS and User groups are likely to miss opportunities to aid each other in achieving their goals. Overall, this would adversely affect the delivery of products and services and IS performance. This leads to the hypotheses that:

H2a: *IS gaps in **mutual benefits** are inversely related to IS performance in the relationship.*

H2b: *User gaps in **mutual benefits** are inversely related to IS performance in the relationship.*

Commitment: Commitment is defined as the *extent to which members of the each group explicitly recognize and agree on common goals* (Coopriider 1990). Commitment to the relationship is critical in consistent channeling of action and fundamental to realizing outcomes when the parties are dependent on each other's actions to achieve goals. A high level of commitment enables effective coordination in contexts of where tasks are non-routine and links between actions and outcomes are ambiguous (Ouchi 1979). Commitments established through organizational mechanisms such as chargeback schemes (Ross and Beath 1998), service level agreements and incentive systems are important to building relationships between IS and User groups as they enable effective communication and negotiation (Zmud 1988). IS and User gaps: gaps in perception of the commitment of the other group to the relationship are likely to create obstacles to

mutual adjustments by parties in handling ongoing conflicts and contentions in the relationship, a situation that would ultimately be reflected in lower IS performance. On the other hand, effective perspective convergence and minimal gaps are likely to lead to effective negotiation and constructive conflict management that would aid the IS group in working with Users and enhance IS performance. We therefore suggest the following hypothesis relating IS and User gaps in commitment and the performance of IS groups:

H3a: *IS gaps in **commitment** are inversely related to IS performance in the relationship.*

H3b: *User gaps in **commitment** are inversely related to IS performance in the relationship.*

Predisposition: Predisposition is defined as the *favorable attitudes held each group to working with the other*. The management of intergroup relationships in uncertain and ambiguous contexts is aided by positive attitudes of cooperation and trust among the groups: opinions that are often based on the actions of parties in prior periods (Gambetta 1988). In contexts where the behavior of the other party cannot be completely specified in advance, a belief that the other party can be trusted to act in ways that are beneficial to the group (rather than in ways that are self-serving) enables flexible cooperation that provides significant strategic advantages (Kulatilaka and Marks 1988). The extent to which IS and User groups trust one another is positively related to IS performance (Nelson and Coopridge 1996).

Predisposition is a more focused and narrower construct than trust that arises from the complex judgment reflecting the usefulness of the other group in providing inputs and the experience of past encounters between the groups.

Effective perspective taking in the IS-User relationship with respect to predisposition is key to full and free information exchange and minimizes the need for formal controls that can be both costly and cumbersome. Minimal IS and User gaps in the level of predisposition are consequently advantageous as they would allow IS groups to work closely with their clients and User groups to effectively utilize the capabilities of the IS group. Conversely, large gaps are disadvantageous and adversely affect the performance of IS groups in serving their users. This leads to the following hypotheses:

H4a: *IS gaps in **predisposition** are inversely related to IS performance in the relationship.*

H4b: *User gaps in **predisposition** are inversely related to IS performance in the relationship.*

Shared Knowledge: Shared Knowledge is defined as the *understanding or appreciation among partners* for issues that affect performance (Coopridge 1990). A high level of knowledge of operating processes and task environment shared by interacting IS and User groups is central to effective cooperation as through an appreciation of each group's strengths

and limitations (Swanson 1974). Knowledge of the user context is important in allowing members of IS groups to recognize opportunities to support users through emerging technologies (Iacono, Subramani and Henderson 1995). Also, the knowledge of the IS group helps users effectively leverage the capabilities and potential of IS service providers. Effective perspective taking related to shared knowledge is likely to significantly improve both the level of communication as well as the quality of communication between the groups. This would allow the IS providers to deliver products and services that meet user requirements as well as enable more effective use of information technologies. The extent of perspective convergence around shared knowledge is thus positively related to IS performance in relationships while a low level of convergence is likely to detract from the ability of the IS and User groups to work together. We therefore propose the following hypothesis:

H5a: *IS gaps in **shared knowledge** are inversely related to IS performance in the relationship.*

H5b: *User gaps in **shared knowledge** are inversely related to IS performance in the relationship.*

Distinctive Competencies and Resources: We define these as the *particular resources and capabilities of each group that are important to the accomplishment of the goals of the partner*. Complementary resources possessed by each group are at the heart of the interdependence between them and a satisfactory understanding of the resources of one group by the other is clearly important to enable each group to draw on what the other has to offer. With rapid changes in information technologies, IS groups need to make significant investments to maintain and upgrade capabilities to serve customers. Enabling a convergent understanding of user resources by IS groups is consequently a key task performed by persons managing IS-User relationships (Iacono, Subramani and Henderson 1995). Understanding provider resources is also important for Users. Effective perspective taking creating an accurate understanding of the capabilities of IS service providers can enable users to anticipate, request and utilize IS services, a process that can be frustrating and unsatisfactory when users do not have a clear picture of IS resources and abilities (Rockart, Earl and Ross 1996). This therefore leads to the hypotheses that:

H6a: *IS gaps in **distinctive competencies** are inversely related to IS performance in the relationship.*

H6b: *User gaps in **distinctive competencies** are inversely related to IS performance in the relationship.*

Organizational Linkages: Organizational Linkages are *the formal and informal mechanisms established to manage the interdependence of IS and User groups in the relationship*. Formal organizational linkages such as periodic service level reviews by managers of IS and User groups, the establishment of joint planning processes serve as important means for

coordination of the activities of the two groups. The importance of supplementing formal organizational mechanisms through informal social interactions between the two groups is recognized as contributing to successful relationships (Rockart, Earl and Ross 1996, Ross, Beath and Goodhue 1996). This is corroborated in studies that find that many of the tasks performed by managers at the interface of IS and User groups involve the dissemination of 'social information' about each groups to the other (Subramani, Iacono and Henderson 1995). Effective perspective taking regarding organizational linkages among groups is likely to improve coordination and the synchronization of the efforts of each group in working with each other, factors that would enhance service delivery and IS performance. In contrast, large gaps in perception between the groups are likely to retard effective interaction between partners and adversely affect IS performance.

This leads us to the hypotheses that:

H7a: *IS gaps in **organizational linkages** are inversely related to IS performance in the relationship.*

H7b: *User gaps in **organizational linkages** are inversely related to IS performance in the relationship.*

Overall, these hypotheses are anchored fundamentally on the expectation that IS performance is superior in relationships exhibiting perspective convergence in comparison to contexts where the perspectives of IS and User groups on key issues highlighted in the partnership model are not convergent.

Study

Data to examine the hypotheses were collected in a field survey of IS-User relationships.

Sampling: A field study of 132 relationships between the IS and User groups was conducted in a convenience sample of seven large organizations in the pharmaceutical, insurance, oil & gas, consumer goods, computer manufacturing, insurance and automotive industries in USA. The organizations in the study were associated with a research center in a large East Coast university and agreed to cooperate with the researchers, permitting access to IS and user managers for the survey. Decisions by each of these firms to participate in the study involved considerable commitment of the managerial time: the study description indicated that upto 10 managers: three IS managers, three User managers and two senior executives would be required to spend about 30-45 minutes each to fill out surveys.

The level of analysis in this study is the IS-User relationship. While all organizations agreeing to participate were covered in the survey, the choice of IS-User relationships within each organization included the survey was determined by researchers using three criteria:

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- a) That user departments obtain IT products and services solely from the in-house IS department.
 - b) That the relationships deliver well defined product/services to users and be managed through a formal management structure
 - c) That the relationship have a history of interaction of at least 3 years

Data were collected using the key informants method (Philips and Bagozzi 1986) from *both sides* of IS-User relationships: from managers of IS groups and managers of user groups who could report reliably on the perspective of their own organizational units in the relationship. Multiple informants provided data on the perspectives of the group that they belonged to (e.g. the perspectives of the IS group in their interactions with users).

Survey Administration: In each of the firms surveyed, the senior manager championing the study appointed a coordinator who helped identify IS-User relationships that met the criteria for inclusion in the sample. The coordinators also identified individual managers to be surveyed within each of the IS and User groups involved in each of the relationships. Surveys were mailed to 423 IS managers and 426 managers involved in the 132 IS-User relationships. Performance assessment surveys were mailed to 262 senior managers; stakeholders who were either directly responsible for the relationship or affected by the performance of the relationship and could therefore be expected to provide accurate assessments of IS performance. The typical informants identified for information on IS performance were divisional level managers responsible for user groups and the VP or the equivalent senior manager heading the IS function. To avoid common methods bias, care was taken to ensure that there was no overlap between managers providing performance assessments and those who provided information on perspectives and perspective taking by the groups.

Measures

Partnership Measures: Items to measure the dimensions of the partnership model were created based on rich data collected through semi-structured interviews with IS managers and User managers in the first phase of the project (Henderson 1990). Both the partnership instruments and the performance assessment instrument were further refined in field pretests involving iterative cycles of personal administrations to managers in multiple firms. A detailed description of the procedures followed for item construction and the psychometric tests performed for instrument validation is provided in Cooperider (1990). Two versions of the final version of the partnership instrument were created, one for IS groups and the other for User groups. Each of these was a two-part survey eliciting assessments of:

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- a) The perspectives of the informant's own group (on the partnership factors)
 - b) The partner's perspective (on the partnership factors) as perceived by his or her own group

Combining the responses of both groups, we had information on each group's perspective (as reported by a knowledgeable member of the group) as well as their perspective as viewed by the partner (as reported by a knowledgeable member of the other group). These two elements thus enabled the extent of perspective taking by each group to be calculated.

IS Performance: We focussed on IS performance as the key outcome variable as this is one of the important motivations underlying the establishment of IS-User partnerships in firms (Henderson 1990). Drawing from prior models of IS performance (Coopridier and Henderson 1989), we conceptualized IS Performance as comprising two dimensions: *Operational* performance and *Service* performance. Operational performance reflects the *internal efficiency* of the IS group's organizational processes. These include factors such as the ability of the groups to meet specific operational goals, the judiciousness in resource use in serving customers and the ability to sustain operations in future periods by nurturing a pool of satisfied IS personnel with skills valuable to the organization. In contrast, *service* performance refers to the IS provider's *focus on meeting client needs*. This includes factors such as the extent to which the group is flexible in serving its clients and the extent to which the IS group's activities contribute to the clients' strategic goals. The extent to which the IS group is innovative and creative in meeting client needs and the extent to which the IS group is responsive to changing client requirements are also components of service performance. Together, the two dimensions of performance: Operational performance and Service performance reflect the IS group's ability to not only focus on optimizing resource usage and internal efficiency but also to serve customers effectively, choices that often present conflicting choices for IS groups (Coopridier and Henderson 1989).

Items in all surveys were customized to refer to the specific IS group and the specific User group in each relationship being studied. The survey, on account of its dyadic design involving customized versions for both the IS and the User group with multiple informants within the groups was a substantial logistical exercise: 1111 copies of 396 customized versions of the partnership and IS performance assessment survey were mailed to informants. The items used to measure the constructs in the study are provided in Appendix -1.

Data Analysis, Results

Response: Overall, 671 responses on IS-User relationships were received from 346 IS managers and 334 User managers. The 346 responses from IS managers pertained to 125 IS-User relationships, the 334 responses from Users pertained to 123 relationships. IS performance assessments were received from 168 senior managers on IS performance in 119 relationships. Every IS-user relationship included in the analysis combined data from three sources: a) assessment of partnership factors by IS managers b) assessment of partnership factors by User managers and c) the assessment of IS performance by senior managers. Relationships that were not complete in all these respects were dropped from further consideration. The final dataset created for the analysis included 95 relationships for which we had complete information from all three sources, the analyses reported here are based on this set. In 56 of the 95 relationships, all of the three assessments: IS side perspectives, User perspectives and IS performance are based on information provided by multiple informants. Details of the number of surveys mailed and response rates from different groups are provided in Table 1.

Table 1: Details of Surveys Mailed and Response Rates

	# Surveys Distributed	# Responses Received	Response Rate	# Relationships Represented
IS Perspective	423	346	82 %	125
User Perspective	426	334	79 %	123
Performance	262	170	65%	119

Note: Complete information; IS, User Perspectives and IS Performance was available for 95 relationships

Sample and Informant Characteristics: The response rates from the groups are uniformly high: ranging from 65 percent to 82 percent, reflecting the success of the strategy of seeking the appointment of coordinators within each organization to act as our champions to ensure a high level of participation.

The average size of the IS groups in the sample was 160 persons, the average size of the user groups was about 740. On average, IS informants had spent 13 years in the firm and had been involved in interactions with the specific user group for about 3.5 years. User informants had spent an average of 17 years in the firm and had been in the current user group for about five years. Senior managers who provided the assessments of IS performance had an average tenure of over 20 years in the firm.

Measurement Properties: Factor analyses of items used for measurement indicated that the greatest magnitude of loadings of all items were on the specific constructs they were expected to measure⁴. The Cronbach's alphas for the

⁴ Details of psychometric tests to confirm convergent and discriminant validity are available from the authors.

constructs are provided in Table 2. They are all above 0.6 except for User Commitment, where the magnitude of the alpha is 0.59. The means and standard deviations of the partnership factors as viewed by the IS and the User groups are presented in Table 3. The descriptive statistics for IS performance are in Table 4.

Table 2: Measurement Properties of Indicators

Partnership Dimension	Cronbach's ? IS Perspectives (n=95)			Cronbach's ? User Perspectives (n=95)		
	# Items	Own Group	On Users	# Items	Own Group	On IS Group
Mutual Benefits	4	0.83	0.81	4	0.77	0.86
Commitment	2	0.65	0.63	2	0.59	0.74
Predisposition	3	0.70	0.84	3	0.74	0.88
Shared Knowledge	2	0.82	0.81	2	0.85	0.84
Distinctive Competencies	2	0.63	0.63	2	0.64	0.71
Organizational Linkages	4	0.85	0.82	4	0.84	0.87
Operational Performance*	4	0.78				
Service Performance *	3	0.85				

Note: Assessments of Partnership factors were provided by members of I/S and User groups, performance assessments were provided by senior IS or User managers

Table 3: Descriptive Statistics of Partnership Factors (n=95)

Partnership Dimension	IS Perspectives		User Perspectives		Gaps in Perspectives	
	Means (SD)		Means (SD)		Means (SD)	
Construct	Perspective of own Group (I1)	Perspective of Partner (I2)	Perspective of own Group (U1)	Perspective of Partner (U2)	ISGap (I1-U2)	User Gap (U1-I2)
Overall Partnership(a)	4.45 (0.76)	4.28 (0.76)	4.37 (0.69)	4.12 (0.91)	0.33 (0.84)	0.09 (0.73)
Mutual Benefits	4.23 (0.86)	4.30 (0.85)	4.30 (0.82)	4.02 (0.95)	0.22 (0.82)	-0.04 (0.86)
Commitment	4.60 (0.93)	3.48 (0.80)	3.60 (0.81)	3.83 (1.03)	0.77 (1.18)	0.13 (0.98)
Predisposition	4.71 (0.91)	4.89 (0.88)	4.86 (0.74)	4.17 (1.09)	0.54 (0.94)	-0.03 (0.91)
Shared Knowledge	4.30 (0.92)	3.83 (1.03)	4.16 (1.03)	4.06 (1.04)	0.25 (1.08)	0.32 (1.03)
Distinctive Competencies	4.92 (0.88)	4.83 (0.82)	5.18 (0.71)	4.55 (0.97)	0.37 (1.02)	0.35 (0.90)
Organizational Linkages	3.91 (0.93)	4.31 (0.92)	4.14 (0.93)	4.11 (0.99)	-0.19 (0.97)	-0.17 (0.99)

Note: (a): this is the average of the scores on the six determinants.

Table 4: Descriptive Statistics for IS performance (n=95)

	Mean (SD)	Correlation
Service Performance	4.57 (0.93)	0.59, p<.01
Operational Performance	4.50 (0.96)	

Analyses, Results

Before proceeding to verify our research hypotheses, we considered alternative hypotheses that differences in IS performance may be attributed to contextual factors in the relationships, a procedure suggested by Bock (1975). We ran a series of regressions of IS performance on independent variables that either directly represent or are proxies for factors that may potentially influence IS performance. The factors we considered were the size of the IS and User groups, the technical complexity of the IS products and services, the level of risk and uncertainty characterizing IS products/services and the stability of the requirements of the User groups. Of this set of potential explanatory variables of IS performance, only complexity of IS products and services was significantly (and inversely) related to performance, a relationship recognized in prior research (Ellis, Watson and Moody 1992). We therefore included product/service complexity as a control variable in our analyses. In effect, by controlling for complexity, we perform a conservative test of the influence of IS and User gaps on IS performance.

Consistent with the conceptualization of fit as a match between two variables (Venkatraman 1989), we calculated a matching of two perspectives can be expressed as the *absolute values of gaps* in perception at the level of each of the six factors of Partnership e.g. Shared Knowledge, Predisposition etc for each IS-User relationship. We calculated the overall gaps in Partnership as the average of the gaps on all six factors. The magnitude of the overall IS gap in partnership was 0.44 and the overall User gap in partnership was 0.16. The descriptive statistics for the IS and User gaps on the individual partnership determinants are provided in **Table 7**.

Association of Partnership Gaps and Performance

Table 5 presents the results of the two regression analyses with the overall IS Gap and overall User Gap (average of the values of gaps in the six partnership factors) as the predictors; Service performance and Operational performance as the dependent variables. Product/Service Complexity was included as a control variable in all analyses⁵.

The results indicate that the values of the IS Gap and of the User Gap are significantly related to both Service performance $F(3,91)=4.9, p<.01$ and to Operational performance, $F(3,91)=4.2, p<.01$. The adjusted R^2 of 0.11 and

⁵ Introducing an interaction term in the equations, we found that the coefficient of the interaction of the two gaps to performance was non-significant. We also explored the likelihood that the relationship of gaps to performance was non-linear. We re-analyzed the data with second order terms corresponding to both IS gap and User gap introduced into the regression. The coefficients of the second order factors were non-significant, lending support to the first order relationship proposed between gaps and performance.

0.09 indicate that these variables explain 11 percent and 9 percent of the variance in Service performance and Operational performance respectively. The values of the regression coefficients of IS gap (-0.36, $t=-2.67$, $p<.01$) and of User gap (-0.23, $t=-1.77$, $p<0.05$.) in the equation relating them to IS Service performance are negative and significant. Similarly, the coefficients of IS gap and User gap in the regression relating them to IS Operational performance (-0.45, -0.30 respectively) are negative and significant as well ($t=-3.32$, $p<.01$, $t=-2.14$, $p<.05$).

These results provide support for an inverse relationship between overall partnership gaps and performance: that lower levels of performance are observed in dyads with larger IS Gaps and User gaps in partnership. The results therefore provide support for Hypothesis 1a and 1b, that IS performance is inversely related to overall gaps in perspective taking by IS and User groups.

While IS gap and User gap are both inversely related to *Operational* as well as *Service* performance of IS groups, the relative magnitudes of individual coefficients in both equations indicates that IS gaps (lack of congruence between IS perspective and those perceived by Users) are more strongly (and inversely) related to IS performance than User gaps.

Table 5: Association of IS and User Gaps with IS performance

Dependent Variable	Predictors and Control	Standardized Beta (<i>t</i> value)	R ² (adjusted) F statistic:(df 3,91)
IS Service Performance	IS, User Gaps, Complexity		0.11 4.9**
	IS Gap	(-)0.36 (-)2.67**	
	User Gap	(-)0.23 (-)1.77*	
	Complexity	(-)0.28 (-).2.78**	
IS Operational Performance	IS, User Gaps, Complexity		0.09 4.2**
	IS Gap	(-)0.45 (-)3.32**	
	User Gap	(-)0.30 (-)2.14*	
	Complexity	(-)0.14 (-)1.38	

Note: **: $p<.01$, *: $p<.05$ in one sided *t* tests

Association of Gaps in Partnership factors to IS Performance

To examine the influence of gaps on individual partnership factors on performance, we performed multiple regressions with IS and User gaps in partnership factors as the independent variables and Service performance and Operational performance as the dependent variables. As before, Technical complexity was included as a control variable in each

regression equation. Performing multiple significance tests within a single sample (12 in our case, one test each for gaps on the six dimension of partnership on the two dependent variables) increases the error rate across the entire study. As suggested by Bock (1975), we used the Bonferroni correction and employed $p < 0.005$ as the significance level for each individual test to control the overall level of significance of each individual test to $p < 0.05$. In effect, this correction yields a very conservative test for the influence of each factor. In each instance, we performed one-sided tests since the hypotheses propose an *a-priori* directionality of effects. The results of the analyses are provided in Table 6.

Table 6: Regression Results: Influence of Gaps on IS Performance

Gaps in Partnership Dimensions	Service Performance (Dependent Variable)				Operational Performance (Dependent Variable)			
	R ² adj.	Overall F (df 3,91)	Beta, t statistic for User Gap	Beta, t statistic for IS Gap	R ² adj.	Overall F (df 3,91)	Beta, t statistic for User Gap	Beta, t statistic for IS Gap
Gap in Mutual Benefits	0.15	6.77***	-0.26 (-2.187)*	-0.38 (-3.37)***	0.07	3.45*	-0.19 (-1.53)	-0.35 (-3.51)***
Gap in Commitment	0.049	2.61	0.10 (0.09)	-0.86 (-0.79)	0.03	1.82	-0.05 (-0.43)	-0.22 (-1.97)
Gap in Predisposition	0.08	3.66*	-0.15 (-1.29)	-0.23 (-1.91)	0.05	2.75*	-0.24 (-1.96)	-0.30 (-2.98)***
Gap in Shared Knowledge	0.05	2.64	0.05 (0.40)	-0.06 (-0.51)	0.01	1.30	-0.5 (-0.42)	-0.18 (-1.50)
Gap in Distinctive Competencies	0.15	6.60***	-0.18 (-1.63)	-0.37 (-3.45)***	0.09	4.14**	-0.24 (-2.12)	-0.35 (-3.19)***
Gap in Org Linkages	0.09	4.57***	-0.12 (-0.96)	-0.38 (-2.81)***	0.05	2.63	-0.21 (-1.61)	-0.27 (-2.08)*

Note: 1) Complexity was included as a control variable in all the analyses.

2) ***: $p < .005$, **: $p < .01$, * $p < .05$ in one sided *t* tests

Table 6 presents the results of the two sets of regressions: the first with Operational performance as dependent variable and the second with Service Performance as the dependent variable. In each set, we performed six regressions: each with IS gap and User gap on one determinant of partnership (eg. Commitment, Predisposition etc.) as the independent variables and the specific dimension of performance as the dependent variable. IS product/service. Complexity was included as a control in each equation.

Service Performance: The overall F statistic in each equation reflects the strength of the relationships of gaps in individual partnership factors to IS Service performance. The F statistic is significant for the regressions of gaps in Mutual Benefits, gaps in Distinctive Competencies and gaps in Organizational Linkages to IS Service performance at the conservative level of $p < .005$. An examination of the individual coefficients of User gap and IS gap where the

overall relationship to IS Service Performance is significant, reveals that coefficients of IS gaps in each of these factors is negative and significant. The coefficients of User gaps in each of these factors do not achieve significance. This therefore suggests that the variance in Service Performance is significantly explained by IS gaps in Mutual Benefits, IS gaps in Distinctive Competencies and IS gaps in Organizational Linkages and that the magnitude of these gaps are inversely related to the level of IS performance.

Operational performance: An examination of the overall F statistics of the regressions involving Operational Performance in Table 6 indicates that only gaps in Distinctive Competencies and Mutual Benefits are significantly associated with Operational Performance. However, the significance of this association: $p < .01$ and $p < .05$ respectively, is below the more conservative level of $p < .005$ required for the Bonferroni correction. The individual coefficients for IS gap in Distinctive Competencies and Mutual Benefits are negative and significant at $p < .005$ suggesting that higher levels of IS gap in Distinctive Competencies and Mutual Benefits are negatively related to Operational Performance. In addition, while the negative and significantly coefficient of IS gaps in Predisposition would suggest that this is a significant factor explaining Operational performance, the overall variance in Operational performance explained by gaps on this dimension is not significant. While these results are suggestive of the inverse relationship of IS gaps on these dimensions to performance, the evidence is tenuous, as they do not meet the stronger criteria applied to correct for multiple comparisons being performed.

Overall, the data partially support H2a, H6a and H7a. The t statistics for the coefficients of the IS gap and User gap for most dimensions are negative (all except two of the 24 coefficients), suggesting an inverse relationship between the size of gaps on these dimensions and IS performance. However, the relationship is significant at the conservative 0.005 level in the case of only IS gap on three dimensions: IS gaps in Mutual Benefits IS gap in Distinctive competencies and IS gaps in Organizational linkages. The results thus provide partial support for Hypothesis H2a, H6a and H7a. Hypotheses H3, H4 and H5 are not supported.

Discussions and Conclusions

The objective of this paper was to provide a theoretically grounded view of IS-User partnerships and examine the extent to which this explained the link between partnerships and performance. Overall, the results suggest the validity of viewing perspective taking on key issues as being central to partnerships. Further, the results suggest that perspective convergence across the six determinants of the partnership model (Henderson 1990) is significantly related

to IS performance. However, the results suggest that perspective convergence on individual determinants of partnership- Relationship Benefits, Distinctive Competencies and Organizational Linkages are more important influences on performance than perspective convergence on Commitment to the relationship, the level of Predisposition and the level of Shared Knowledge.

One plausible explanation for why the hypotheses relating convergence on Commitment to the relationship, the level of Predisposition and the level of Shared Knowledge were not significant might center on the context of our sample. Our data was collected primarily from large firms with established IS groups serving longstanding internal clients where outsourcing was not an option for the user groups within these firms. It is likely that opportunism is muted in these contexts, thus making a lack of effective perspective taking around *commitment* and *predisposition* relatively less detrimental to performance. Further, it is likely that organizational values shared by both IS and User groups provide a shared organization specific vocabulary and an overarching context for convergent sensemaking, that in a sense, makes up for ineffective perspective taking, even around key factors such as *predisposition* and *shared knowledge* between the groups. This is clearly a set of issues that need further examination. In contexts where IS-User relationships span organizational boundaries and where participants may lack the binding fabric of a rich social context established by a common hierarchy, it is likely that perspective convergence around these factors might be significant explanatory factors of IS performance variations.

Overall, this study highlights the utility of the socio-cognitive model in examining intergroup relationships in organizations, particularly those between IS providers and their clients. This research contributes makes several contributions, both to the literature on social cognition and to IS literature. The research makes a methodological contribution to the operationalization of gaps, measuring the extent of perspective taking as the difference between the self report of the group and the report on the same issues of the partner's understanding of the group's views. We believe that enables a more accurate measurement of perspective taking differences than the conventional approach where an individual or a group makes a composite judgment of the extent of perspective taking (Sessa 1996)⁶.

This research also provides contributes to the operationalization of the multidimensional view of IS performance that has been suggested in prior research (Ross, Beath, Goodhue 1996). The two dimensional view of performance extends prior operationalizations of IS performance as a unidimensional construct (e.g. Nelson and Coopridier 1996). Our

results suggest that this distinction is important because important variables e.g. perspective taking on the level of organizational linkages are linked to one dimension - Service performance but not to Operational performance. This is an area that needs further research.

This research also contributes to a theoretically grounded conceptualization and empirical test of IS-User partnerships as relationships incorporating high levels of perspective taking on six underlying factors. The results, while demonstrating the utility of the model suggest ways in which the model may be refined further. For instance, the extent to which each of these six factors in relationships may exhibit interdependencies among each other may be a fruitful direction in further research. The results of this paper have important implications for both research and practice in IS. The results reflect the importance of achieving a match between the perspectives of IS providers and their clients: a lack of convergence is negatively associated with IS performance. In particular, IS gaps arising from ineffective perspective taking by User groups emerge as the most salient influences on performance. This essentially suggests that enabling accurate perspective taking by User groups with respect to IS providers is a powerful means to improve IS performance. In particular, the data suggest that improving perspective taking by users regarding the nature of benefits to the IS group, the distinctive resources contributed by IS groups and the organizational linkages between the IS group and users would influence IS provider performance significantly.

Some of these results run counter to current conventional wisdom on improving IS performance. The assumption implicit in most efforts to enhance IS performance in organizations is that the delivery of IS performance is improved by a greater understanding of client perspectives by IS groups. While IS gap and User gap are both related to IS performance, our findings suggest that establishing a greater understanding of IS perspectives by user groups is a stronger lever to influence IS performance. In particular, users' comprehension of the structure of IS benefits in the relationship, the distinctive competencies contributed by the IS group and the nature of social, informational and process linkages by which the IS group are able to influence users are important contributors to IS performance. Our result that IS gaps have a stronger influence and are more closely related to IS performance than User gaps reinforces the idea that developing 'intelligent' customers is a powerful means to impact performance, a notion recognized in the IS service quality literature (Pitt, Watson, Kavan 1995).

⁶ For instance, Sessa (1997) used items such as "I try to look at everybody's side of a disagreement before I make a decision". Nelson and Coopridier (1997) had IS groups report on both their roles as well as those of the User group. Linking IS-User Partnerships...

Material from subsequent interviews with IS managers and users provide some clues related to the link observed between Users' understanding of IS perspectives (IS gap) and IS performance. In one instance, we found that a greater understanding by Users of the profile of the processing workload of their IS provider enhanced IS performance by allowing User managers to work within the constraints on IS capacity without affecting the outcomes to themselves. The case involved a large centralized HR function located in the East coast of a Fortune 500 firm whose IT services were provided by a central IS group. One of the major services provided by the IS group involved an I/O intensive and CPU intensive report generation application that was run every day at noon on its central server in Raleigh to provide an updated report on employee turnover available online for access by 2PM. This major application stretched IS processing resources during the period that the group was handling the increasing volume from West Coast offices, requiring the IS group to consider making a budget request to upgrade processing capacity. However, when the managers of the user group were approached by the Relationship Manager, the person managing the interface between the groups, who explained to them the processing constraints faced by the IS, the group readily agreed to have the report generation application moved from its regularly scheduled mid-day slot to off-peak hours later in the day. The Relationship Manager learnt that the User group had specified a mid-day deadline on the processing merely as a precaution to ensure that the statistics would be available to brief senior managers the following morning; the user group requirements were met as long as the report generation was completed before the end of the working day. This accommodation helped the IS group tremendously as it allowed them to provide high response times for online transactions during peak times while utilizing capacity during off-peak times for the HR application. This is one instance of how an understanding of IS perspectives, particularly that of the structure of IS benefits by User personnel leads to improved IS performance.

We encountered another instance of the productive outcomes from an understanding of the IS providers' perspective in a large firm during the design of an application to provide standard HR services (such as changing 401K payroll deductions) to employees online. In the course of interactions, the user group learnt that the IS group's internal procedures to evaluate project members' performance strongly emphasized the creation of highly secure systems. Further, the IS group policies penalized both the development and operations groups responsible for systems that were audited as being insufficiently secure. To the user group, this provided the causal logic for what they believed to be overly elaborate security measures that the IS group was suggesting for their applications. A meeting convened by

managers of the user group with the IS group in which senior personnel from both groups discussed the security concerns anticipated by the IS group in great detail, jointly assessing not only the severity of the risk but also the probability of the occurrence of each type of incident. The consequent exchange of information on patterns of anticipated system use and the HR group's understanding of the target audience allowed the IS group to redefine the system specifications with the appropriate levels of security. The final set of security measures adopted was a more practical subset of the original proposal by the IS group resulting in a scaling down of cost and complexity of the design while meeting the security standards of the IS group. This subset avoided large costs related to preventing egregious behavior (such as malicious hacking by insiders in the HR group) and relied instead on a closely monitored security process tracking the modification of sensitive information. This re-specification, engendered by the users' understanding of the IS group's application evaluation criteria and the development effort and costs for different alternatives enabled significant cost savings as well as faster application development: both of which were key factors influencing IS performance.

The results of this study support the propositions based on socio-cognitive theory that enabling effective perspective taking is an important concern in intergroup interactions. However, it is also feasible for members of groups to converge on views that might *not* be reflective of reality or might be a distortion of reality. A convergence in such instances is in fact quite counterproductive and can often lead to adverse consequences. In IT mediated IS-User interactions for applications development, *groupthink*, the phenomenon characterized by group members feeling pressured to achieve consensus prevents a consideration of divergent perspectives that might lead to more desirable outcomes (Kettelhut 1993). The negative outcomes of convergence between IS and User group are also observed in re-engineering projects, where widely held non-critical attitudes towards existing organizational features often hinder the elimination of structural deficiencies (Kiely 1995). We therefore sound a note of caution that efforts to minimize perceptual gaps in IS-user relationships need to be sensitive to this possibility. This may be a real threat in the context of IS-User relationships as mental models incorporating distorted views of reality, when shared, can be disastrous as this may lead groups to ignore or underplay the value and applicability of new technologies that radically disrupt convents and standard operating procedures or the established status quo.

We believe that the results also have implications for the design of IS curricula in business schools. There has been considerable emphasis on the incorporation of content relating to the various organizational functions in IS curricula so

that graduates can effective members of IS organizations (Lee, Trauth and Farwell 1995). The results of our study suggest this emphasis on providing an understanding of functional organizations in IS graduate programs needs to be matched by an emphasis on providing an understanding of IS management issues in functional business curricula such as marketing and operations. This understanding of IS perspectives will train students to be effective managers who can effectively leverage organizational resources invested in information technologies most effectively. While this is an emerging view expressed by educators concerned about the content of core MBA curricula (Silver, Markus, Beath 1995), our study provides evidence for the validity of their conceptual arguments.

This study also has implications for the design of organizational incentive mechanisms. We believe that the result of this study may be applied to the use of organizational services provided by the IS group that are *infrastructural* in nature such as electronic commerce services, human resource services etc. Our results suggest that it might be productive to design incentive mechanisms that encourage the comprehension of service providers' perspectives so that the groups may be intelligent consumers, allowing service providers to enhance performance, achieving the larger goal of effective organizational resource utilization. This is clearly an issue of considerable importance to IS researchers and practitioners and warrants further examination.

We would like to emphasize that these generalizability of these results may be limited because they are based on the examination of phenomena in large firms where users groups exclusively used the services of in-house IS service providers. The applicability to domains where a large proportion of services are outsourced is an empirical question that bears further research. While this study focussed specifically on factors identified in the partnership model (Henderson 1990), more work is needed to inform our understanding of the key issues on which convergence between IS and their client groups is important and the influence of social processes on performance in IS-User relationships. Further, this study, consistent with the reference theory, focussed exclusively on the absolute magnitude of the gaps in perception between groups and their influence on outcomes. Such an approach is consequently not sensitive to the magnitude and direction of the gaps. For instance, by focussing on the absolute magnitudes of gaps, this study treats the effect of an over-estimation of the Organizational Linkages of the IS group by the User group as identical to the influence of an under-estimation of the Organizational Linkages by the same magnitude. We believe that a finer articulation of the differences examining the influence of the directionality of gaps is likely to yield further insights on the phenomenon.

Finally, we also echo the call for more action research by other authors such as Markus and Benjamin (1996), Iacono, Subramani and Henderson (1995) to articulate micro-behaviors, based on actual observations of managerial action at the IS-User interface that would enhance our understanding of dynamics leading to the outcomes of interaction of these groups.

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Appendix -1 ⁷

IS Performance Measures

Scale: 7 point Likert Scale anchored (from 1 to 7) on :

Non Existent, Very Weak, Weak, About Average, Strong, Very Strong, Extremely Strong

Operational Performance

In general, the job satisfaction of the [IS organization] personnel is:

In general, the financial contribution (e.g. return on assets, profitability, etc.) of the [IS organization] is:

In general, the ability of the [IS organization] to meet its goals is:

Service Performance

In general, the contribution that the [IS organization] has made to the accomplishments of the [User organization]'s strategic goals is:

In general, the ability of the [IS organization] to react quickly to the [User organization]'s changing business needs is:

In general, the extent to which the work produced for the [User organization] by the [IS organization] is innovative or creative is:

In general, the flexibility of the [IS organization] is:

Technical Complexity

Scale: 7 point Likert Scale

Technically Very Simple, Mixed Technically Very Complex.

In general, the work done by the IS organization for the User organization is:

Factors of IS-User Partnerships

Scale: 7 Point Likert Scale

Relationship Benefits

The level of non-financial benefits (such as improved job satisfaction or quality of work life) that the [User/functional organization] receives from its relationship with the [I/S organization] is:

The degree to which the [User/functional organization] is able to reduce its risk level in achieving its goals because of its relationship with the [I/S organization] is:

The extent to which the [User/functional organization] uses technology in more innovative ways because of its relationship with the [I/S organization] is:

The degree to which the [User/functional organization] is proactive in initiating new uses and applications of information technologies is:

Commitment

The degree to which the [User/functional organization] supports the goals of the [I/S organization] is:

The degree to which the incentive system of the [User/functional organization] supports the goals of the [I/S

⁷Note: The material in brackets in each question was customized in surveys to refer to the specific IS and User organizations e.g.

In general, the ability of the IT Support Group to react quickly to the Marketing Research Group's changing business needs is..

organization] is:

Predisposition

The willingness of the [User/functional organization] to involve key [I/S organization] people in their planning activities is:

The reputation of the [User/functional organization] for meeting its commitments to the [I/S organization] is:

The degree to which the [I/S organization] trusts the [User/functional organization] is:

Shared Knowledge

The level of understanding of the [User/functional organization] for the work environment (problems, tasks, roles, etc.) of the [I/S organization] is:

The level of appreciation that the [User/functional organization] has for the accomplishments of the [I/S organization] is:

Distinctive Competencies and Resources

The extent to which the [User/functional organization] depends on the resources of the [I/S organization] (such as people, skills, technology, etc.) to accomplish its goals is:

The extent to which the [User/functional organization] has invested specific resources (such as people, technology, special training, etc.) in order to work more effectively with the [I/S organization] is:

Organizational Linkages

The extent to which the [User/function organization] receives information about the planning processes of the [I/S organization] is:

The extent to which [User/function organization] personnel have close relationships with key *I/S* planners or strategists is:

The extent to which [User/function organization] personnel have close relationships with those involved in the day-to-day activities of the [I/S organization] is:

The extent to which [User/function organization] personnel monitor and review the activities of the [I/S organization] is:

Table 7: Descriptive Statistics and Zero Order Correlations

	Mean	SD	LMUTBG	LCOMMG	LPREDG	LSHRKG	LDISTG	LORGLG	IMUTBG	ICOMMG	IPREDG	ISHRKG	IDISTG	IORGLG
UMUTBG	-.101	.9967	1.000											
UCOMMG	.094	1.0920	.506	1.000										
UPREDG	-.091	.8907	.446	.445	1.000									
USHRKG	.203	1.0184	.577	.564	.541	1.000								
UDISTG	.256	.9746	.552	.421	.532	.568	1.000							
UORGLG	-.231	.9661	.606	.512	.388	.591	.539	1.000						
IMUTBG	.309	.9603	-.536	-.461	-.291	-.551	-.466	-.627	1.000					
ICOMMG	.791	1.1568	-.346	-.371	-.294	-.331	-.338	-.529	.568	1.000				
IPREDG	.599	1.0261	-.573	-.427	-.544	-.606	-.491	-.663	.622	.662	1.000			
ISHRKG	.367	1.0877	-.478	-.319	-.314	-.546	-.412	-.516	.639	.674	.680	1.000		
IDISTG	-.117	.9671	-.431	-.324	-.292	-.494	-.443	-.598	.729	.604	.666	.693	1.000	.
IORGLG	.427	1.0525	-.495	-.391	-.371	-.538	-.359	-.618	.676	.596	.650	.650	.684	1.000
IS Complex	2.887	1.0723	-.289	-.241	-.073	-.133	-.178	-.067	.073	.066	.098	.125	.101	.051

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

a Listwise N=95

Note on Nomenclature: Umutbg refers to User gaps while Imutbg refers to IS Gaps