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Exploring Role Assignments in Staffing Decisions by IT Outsourcing Providers

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ABSTRACT

While IT outsourcing research has been attentive to clients' outsourcing strategies, less is known about viable provider strategies. The objective of this paper is to develop a conceptual model of IT providers' staffing strategies in response to environmental conditions. To do so, we draw from role theory to understand how staffing roles are constituted in relation to environmental conditions. Specifically, we ask: How do conditions of environmental dynamism, so characteristic of the IT arena, influence vendors' allocation of human capital on projects?

We develop an understanding of different types of environmental dynamics from organizational theory and strategy literatures. Then, complementing the role theoretic literature with more recent work on social networks, we offer a typology of social network roles. Next, we explore vendors' role assignments based on environmental dynamics to develop a model and accompanying propositions. Suggestions for future research and implications for management follow.

Keywords

Staffing decisions, role theory, social networks, environmental dynamism.

INTRODUCTION

During the last decade, information technology (IT) outsourcing has become a visible and pervasive phenomenon, one that is central to most organizations' IT strategies. IT outsourcing refers to "the transfer of property or decision rights in varying degree over the IT infrastructure by a user organization to an external organization such as a technology vendor or a system integrator" (Loh and Venkatraman, 1992). Organizations outsource IT primarily in order to reduce IT operating costs, refocus IT and business on core competencies, or to leverage external technical expertise (Lee, Miranda, and Kim, forthcoming). As clients' focus shifts from garnering cost-efficiencies to garnering knowledge, the client-provider relationship becomes critical to successful outsourcing (Lee and Kim, 1999). In fact, understanding how providers effectively manage their own knowledge resources is imperative to understanding effective delivery of knowledge to clients. It is therefore not surprising that researchers are now beginning to attend to the provider side of the equation in the management of outsourcing relationships (e.g., Levina and Ross, 2003; Ho, Ang, and Straub, 2003).

In the IT outsourcing arena, providers usually handle several projects for different clients simultaneously. These projects necessitate resource allocations and management across organizational boundaries (Kavan, Miranda, and O'Hara, 2002). Project teams constituted around outsourcing typically comprise of individuals from the client organization, the provider organization, and frequently also from subcontractors. Such project teams that operate across organizational boundaries are exposed to more external instabilities than typically experienced by internal project teams. Whether these inter-organizational project teams are successful depends on a variety of factors, among which providers' appropriate allocation and management of human capital is key. IT providers operate in an industry that is high in human resource intensity. Every project in this industry requires both specialized and generic skills, irrespective of whether the project involves the management of a data center or developing software for a client. But merely having the necessary human capital is insufficient since opportunities accrue not from "what you know, but who you know" (Nardi, Whittaker and Schwarz, 2000). Thus, in making staffing decisions, providers need to be attentive not only to *human capital* requirements, which fund projects with the skill base necessary to accomplish specified tasks, but also to *social capital*, which provides the connectivity necessary for apprising project teams of opportunities and linking them with disparate information and knowledge sources that may be critical to their success. Such social capital accrues from providers' customer-based and industry-based networks and enables providers to respond effectively to the dynamism that is characteristic of the IT environment (Cross and Prusak, 2002). Employees who are good at networking and boundary spanning therefore serve a critical role on projects, even if they

lack technical skills. In sum, the management of outsourcing project teams necessitates providers' attention to a range of roles necessary for the viability of the project team.

The IT outsourcing literature currently lacks a cogent understanding of how providers make staffing decisions in regard to the role assignments on projects. A central question of this research is: how do different types of environmental dynamism influence role performances on provider teams that are necessary for their maintenance of successful client relationships? We explore these allocations based on role theory.

UNDERSTANDING PROVIDER ROLES ON OUTSOURCING PROJECT TEAMS

Role theory has been useful in understanding a range of organizational phenomena from organizational behavior to the constitution of macro-social structures (Welbourne, Johnson, and Erez, 1998). Here, we consider role theory as a way of understanding the constitution of provider roles on client-project teams. Roles are rules of action (Montgomery, 1998). They are defined as "positions in a social framework", but are also constituted by "the individuals who occupy them" (Welbourne et al., 1998, p. 541). As such, while roles are associated with individuals' capabilities, they are called into play by specific situations or environmental conditions (Montgomery, 1998). We first consider the environmental conditions most pertinent to IT outsourcing providers and then explore roles that are important to consider in the constitution of provider teams.

Organizational researchers have identified three environmental conditions that are salient to strategic decision-making: munificence, complexity, and dynamism (Dess and Beard, 1984). Of these three, dynamism is especially critical to IT outsourcing decision-making. *Dynamism* "relates to the difficulty in predicting the future of a given environment" (Sharfman and Dean, 1991, p. 685). It refers to the rate of unpredictable environmental change or environmental *instability* (Dess and Beard, 1984). Dynamism/instability stems from the pace of change in the (1) labor market, (2) product/service market, or from (3) technological instabilities (Sharfman and Dean, 1991). Rapid and unexpected change can constrain a provider's ability to adapt to its environment (Hannan & Freeman, 1977).

The Environment of IT Outsourcing

The environment of IT outsourcing is fraught with instabilities. Human resource or *labor market instability* exists in the characteristic unpredictability of the IT labor market in organizations' ability to acquire and retain qualified technological expertise (Kirsch, 2000). The rapid growth of the information economy especially creates challenges for IT companies attempting to hire skilled employees (Ang and Slaughter, 2000). As the market for IT services gets saturated, clients have more power than before and their expectations of IT providers increase (Delaney and Bank, 2004). Consequently, providers are now able to demand higher levels of product customization and technical support than previously requested. Additionally, once an employee has accumulated a certain amount of human capital, i.e., knowledge and skills, other providers or clients may recruit him/her with offers of a higher salary. Thus, the provider always faces a risk of not acquiring or retaining qualified technical staff. Currently, the worldwide shortage of IT professionals is in excess of one million (Ang, Slaughter and Ng, 2002). In India, often believed to be the solution to technical staffing problems experienced by the U.S., providers are now struggling with retention issues, in the face of accelerating turnover rates. In efforts to not be caught short, IT organizations frequently resort to overstaffing, thus driving up costs of training and recruitment as well as lowering productivity and efficiency (Slater, 2004).

A second major arena of instability facing IT vendors concerns the client's *product or service market*. IT providers depend on their clients and their long-term satisfaction and goodwill. Once a provider develops a long-term relationship with a client, possibly in the form of an evergreen contract (a contract with no specific ending date), providers have a lock on a client's business and can also leverage that relationship to develop a reputation that may attract further client contracts. Clients have the major control over a contract, and the balance of power in the inter-organizational relationship favors clients in the long-run (Pfeffer and Salancik, 1978). However, clients' preferences and demand for products/services are unstable; clients' needs and specifications frequently change, making it difficult for providers to plan projects and resource deployments (Birnbaum, 1984).

A third arena of instability in IT outsourcing is the *technology* itself. Technological instability derives from the dynamic nature of the IT market. The speed of innovation in the IT industry can be described as explosive. Technologies emerge and change quickly and the life cycle for technical products is short. We see evidence of this in the pace at which major software vendors such as Microsoft and SAP release patches, updates, and new versions of their software (e.g., Delaney and Bank, 2004). Not surprisingly, in such a fast changing technology environment, IT providers expend much of their energies learning about new technological products, new releases and their inter-operability. They also need to anticipate which technological products and standards will prevail. Failing this, providers' investments in specific human capital will quickly depreciate.

Understanding Roles on a Provider Team

Role theory has identified nine distinct roles played by members on a team, each of which is believed to be critical to successful team performance (Senior, 1997; McCrimmon, 1995; Belbin, 1993). Underlying these required team roles are the two types of capital that employees bring to a project. First, employees have *human capital* — health, intelligence, skills and experiences that enable them to excel on their assigned projects (Becker, 1993). Second, employees have *social capital* — relationships with other employees, friends and colleagues through whom they receive intimation of opportunities and gain influential access to important decisions (Granovetter, 1973).

According to Becker (1993), human capital falls into two categories. Specific human capital refers to the knowledge and the skill related to the job and is not transferable. General human capital is transferable and is reflected by general knowledge and skills. The development of human capital involves education and training. For this research, we identify project specificity as a dimension of employee human capital. In the course of a project, employees contribute their project-specific human capital, and in the meanwhile, they accumulate such human capital by developing a high level of tacit knowledge and expertise.

Social capital is conceptualized as an asset that inheres in social relations and networks (Leana and Van Buren III, 1999). The literature on social capital and social networks has focused on two predominant forms – relationships based on strong interpersonal ties and those based on weak ties. Human capital has been viewed as distinct from social capital in that human capital is a property of individuals while social capital inheres in relationships among people (Burt, 1992). In any given team, actors have and contribute varying levels and different types of human and social capital. The different types of capital contributed by team members is captured in the social network roles identified by Cross and Prusak (2002).

Central connectors link people in a network with one another. They usually have a comprehensive understanding of network members and know whom they should turn to in different situations. They are not necessarily the formal leaders but coordinate the activities of others (Ancona and Caldwell, 1992; Belbin, 1993). When team members have any questions or needs related to the project, they are also likely to turn to the central connectors for help or support. *Information brokers* communicate across sub-groups on a team, keeping these sub-groups together. They facilitate knowledge transfer across groups within a single knowledge domain. This role coincides with Belbin's (1993) team worker, who not only manages knowledge transfer within domains, but also mitigates any sub-group conflict that may ensue. *Boundary spanners* connect with people outside the network (e.g. clients). They are the resource investigators identified by team role theory (Belbin, 1993). They facilitate communication across knowledge domains as well as the impression management, characteristic of ambassadors (Ancona and Caldwell, 1992). On outsourcing teams, the major responsibility of some one who plays this role is to network with members of the client organization so as to understand the client's needs. In doing so, boundary spanners are also ambassadors, managing client expectations and impressions. These roles of central connector, information broker, and boundary spanner constitute the social capital of a team. In their awareness of the disparate activities performed within and across teams, individuals playing these roles are also able to stimulate creative problem-solving with the team, playing out conventional role theoretic roles of plant, i.e., injecting new ideas, and monitor, i.e., critiquing these ideas for their feasibility (Belbin, 1993).

Peripheral specialists, as identified by both Cross and Prusak (2002) and by Belbin (1993) are those who possess specialized expertise. Implicit in the network role analyses by Cross and Prusak is a fifth type of role— wherein the employee plays none of the above roles. Rather, such an employee focuses on initiating and completing bounded, pre-specified, and well-defined tasks. These are the shapers, implementers, and completers identified by role theory (Belbin, 1993). These individuals do not possess the specialized expertise of the peripheral specialists, but rather bring more generic skills to projects to which they are assigned. In contrast to peripheral specialists, these role players are therefore called *embedded generalists*. Peripheral specialists and embedded generalists constitute a team's human capital. These roles are now explored in the context of different underlying environmental instabilities.

TOWARD A MODEL OF EFFECTIVE TEAM CONSTITUTION IN DYNAMIC ENVIRONMENTS

Conventional role theory suggests that the appropriate constitution of a team, i.e., the availability of a suitable mix of roles, is important to its success (e.g., Senior, 1997). We extend conventional role theory, augmenting it with recent understandings about the significance of restrictive role assignments (McCrimmon, 1995) and of situational conditions (e.g., Montgomery, 1998). The proposed model is presented in Figure 1. Specifically, we propose that different underlying environmental instabilities will moderate the effectiveness of various provider staffing strategies, as manifest in the role constitution of project teams.

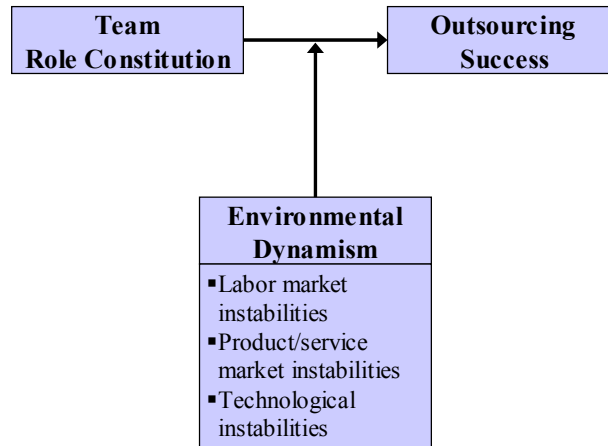


Figure 1. Research Model

Role Constitution of Teams

Role theory suggests that effective teams will be comprised of individuals that play each of the critical team roles outlined. In the context of IT vendors' project teams, we broadly defined these roles as peripheral specialists and embedded generalists, who supply the requisite human capital that funds the projects, and central connectors, boundary spanners, and information brokers, who facilitate intra- and inter-group connectivity and coordination, and apprise the team of potential problems and opportunities. As noted by prior role theory researchers, the presence of a diverse role set on a team optimizes team performance (e.g., Senior, 1997).

P1a: Teams comprised of all five critical roles will outperform those missing one or more roles.

Early perspectives on team role theory presumed that individuals are restrictively assigned to play fixed roles on a team and across teams based on their individual abilities (Belbin, 1993). An emergent perspective on team roles recognizes that individuals may actually have different *portfolios* of roles that they can successfully play and may assume different specific roles depending on the requirements of the situation (McCrimmon, 1995). Restrictive assignment of individuals to roles and roles to teams has both advantages and disadvantages. Advantages of this strategy include role clarity, encouragement of employees to hone a specific ability, and ability to ensure a priori that essential roles are covered (e.g., Sohi, Smith, and Ford, 1996). However, restrictive role assignments preclude employees from responding to situational opportunities and threats, and from self-development; it curtails creativity and team adaptation to changing environmental conditions (McCrimmon, 1995). Thus, under conditions of rapid and unpredictable environmental change, flexible role assignments afford teams the ability to adapt and respond to novel situations. Such conditions require team members to be able to assume multiple roles.

P1b: As environmental dynamism increases, project teams on which employees play out restrictive role assignments to project teams will under-perform teams compared to teams comprised of employees with flexible portfolios of roles.

Conditions of Human Resource Instability

Given the increasingly rapid evolution of IT, the viability of technological skills changes quickly, resulting in the shortage of specific skills. Thus, it is often challenging for a firm to locate and acquire necessary expertise (Slaughter and Ang, 1996). Coupled with high employee turnover rates, providers face considerable human resource uncertainty. In order to mitigate this instability, organizations tend to focus on the specific skills they need in order to be unique and to gain strategic advantage over competitors (e.g., Barney, 1991). In a case study by Levina and Ross (2003), the provider was noted to rotate personnel through different projects to create the opportunity for those with little professional knowledge and skills to learn from more experienced people. These personnel represent the *embedded generalists* in Cross and Prusak's (2002) typology. In the course of rotation, the provider is able to overcome labor market constraints as they develop multiple employees to perform critical technical tasks. The more even distribution of such knowledge provides the provider with insurance against employee attrition and facilitates knowledge transfer to other client projects. It also enables the provider to make personnel

development one of its strategic competencies and leverage it toward strategic advantage over its competitors (Levina and Ross, 2003). In this strategy, embedded generalists, who are able to learn and perform a multitude of tasks, become an important commodity on projects.

P2a: As conditions of human resource instability increase, a salient role of embedded generalists on project teams will improve team performance.

However, providers need to offset their strategy of leveraging embedded generalists (rather than attempting to recruit peripheral specialists) by utilizing appropriate social capital to facilitate the transfer of knowledge from existing specialists across the organization to the generalists assigned to a project. To this end, central connectors will be the critical social capital role under conditions of human resource instability. Furthermore, these central connectors facilitate the socialization of embedded generalists, thereby increasing their commitment to the organization and minimizing the attrition of valuable employees once they have mastered diverse skills (King and Sethi, 1998).

P2b: As conditions of human resource instability increase, a salient role of central connectors on project teams will improve team performance.

Conditions of Client Instability

Clients have the freedom to choose the products/services they wish and obtain the best deal they can (Nelson, 2002). In the IT outsourcing arena, while the incidence of long-term and evergreen contracts has increased, it is not uncommon for a client to vet potential providers on a pilot project and subsequently also invite competitive bids on the project (e.g., Levina and Ross, 2003). Even after being selected, client contracts are subject to renewal, allowing for constant re-evaluation of the provider. In situations of such heightened client uncertainty, providers will want to ensure that the client faces no disruption in service that might be unduly frustrating. Providers will therefore strive to maintain stability in their human capital assignments in regard to peripheral specialists who are knowledgeable about that client's specific technological needs.

P3a: As conditions of client instability increase, a salient role of peripheral specialists on project teams will improve team performance.

Under conditions of client instability, providers will also want to be apprised of changes in client needs or attitudes in a timely fashion. Boundary spanners, or "roving ambassadors" who "nurture connections" outside of the immediate team, are invaluable in this regard (Cross and Prusak, 2002, p. 109). By networking with members of the client organization, such boundary spanners can develop the provider's inter-organizational social capital, enabling them not only to better understand client needs, but also to cultivate goodwill through their development of close, personalized relationships (Granovetter, 1985). Furthermore, in their impression management activities, such boundary spanners engender positive evaluations of the team by clients (Ancona and Caldwell, 1992). In IT outsourcing, this strategy has proven successful in managing changing client needs: close, personalized relationships facilitate provider pro-activity and clients' tolerance of providers' non-critical mistakes (Levina and Ross, 2003).

P3b: As conditions of client instability increase, a salient role of boundary spanners on project teams will improve team performance.

Conditions of Technological Instability

In the face of an unstable technological environment, providers need to anticipate technological change, be aware of dominant designs at any given point in time, understand whether it is competence-enhancing or destroying, and understand the implications of changing technologies for their clients (Anderson and Tushman, 1991). Technological instability also requires that the provider anticipate market, regulatory, and social changes that may prompt technological changes (McGrath, MacMillan, and Tushman, 1992). Each of these activities requires that vendors facilitate information flows within specific technological and market knowledge domains. Under conditions of such technological instability, high performing teams are those that scan their technological and market environments (Ancona and Caldwell, 1992). Such scanning facilitates transfer of technical knowledge across team boundaries (Katz and Tushman, 1979). Under such conditions, providers will therefore rely on information brokers, who can leverage their linkages with multiple organizations to be aware of emergent technologies and potential impacts on organizations (Ancona and Caldwell, 1992).

P4: As conditions of technological instability increase, a salient role of information brokers on project teams will improve team performance.

CONCLUSIONS

One of the central concepts in organization theory is that organizations respond to their environments by adopting contingent strategies. In this paper, we explored the viability of specific staffing strategies under varying environmental instabilities. We argue that by considering both human and social capital requirements on project teams in relation to conditions of human resource, client, and technological instabilities, providers are able to optimize teams' responsiveness to client needs and to consequently facilitate outsourcing success.

Having developed a model relating different forms of environmental dynamism to different optimal role assignments to teams, this model now needs to be tested. Such a test would necessitate assessment of the conditions of environmental instability surrounding providers' IT outsourcing projects, the restrictiveness in assignment and salience of each of the five team roles specified herein, and an assessment of outsourcing success. While numerous assessments are available with regard to outsourcing success (e.g., Lee, Miranda, and Kim, forthcoming) and environmental instability (e.g., Sharfman and Dean, 1991), assessing role salience requires the development of appropriate metrics. A number of possibilities exist in this regard, ranging from the development of a perceptual measure that queries project managers about the restrictiveness and relative importance of roles on a project to more objective assessments such as a combination of a team skills inventory coupled with each team-member's compensation or billing rate, and a ratio of classified role players to the total number of project team members.

However, dynamism is only one of the three dimensions under the environmental conditions. Two factors that are salient to strategic decision-making are munificence and complexity (Dess and Beard, 1984). In order to facilitate more effective provider staffing strategies, it is important that these conditions also be investigated.

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