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IT Outsourcing: A Framework for Examining Workforce Challenges

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ABSTRACT
There have been dramatic changes taking place in IT over the past decade. One of the greatest changes has been in the increased outsourcing of technology functions to onshore and offshore vendors. These relationships have moved beyond call center and help desk management contracts to more elaborate tasks such as application development and network design. As a result, IT workers are being impacted by these changes in the nature of how they conduct their work activities. Research to this point has essentially overlooked the effect these changes are having on the IT worker. Therefore, the purpose of this paper is to begin examination of how outsourcing can impact the IT worker from both a job perspective and career perspective. A review of relevant literature is provided along with a general framework for considering potential issues that will arise related to the IT worker in outsourcing ventures.

Keywords
Outsourcing, information technology workforce

INTRODUCTION
The information technology industry is seeing a tremendous growth in outsourcing. In 1989 outsourcing was reported to be approximately a $4 billion/year business (Lacity, Willcocks, and Feeny, 1996). In 2000, outsourcing of IT functions had reached $56 billion/year, and by 2005 it is expected to reach $100 billion/year (Casale, 2001). An increasing amount of this outsourcing is now with offshore vendors. It has been reported that the cost of different types of IT work is anywhere from 20-50% less offshore (Hoffman, 2003). This is an outstanding figure and the implications behind it are enormous.

The purpose of this paper is to better understand this shift in the information technology industry by examining several issues related to outsourcing: 1) how outsourcing is defined; 2) the impact that outsourcing decisions have had on the work environment; and 3) the potential impact of outsourcing on the IT worker. A framework is developed and presented to help guide both researchers and practitioners in studying and managing a variety of workforce issues that arise when engaging in outsourcing.

OUTSOURCING DEFINED
Outsourcing is “the use of external agents to perform one or more organizational activities” (Lacity and Hirschheim, 1993, p. 2). This is a broad definition that can encompass any organizational function. A more specific definition for IT outsourcing was provided by Loh and Venkatramen (1992): “the significant contribution by external vendors in the physical and/or human resources associated with the entire or specific components of the IT infrastructure in the user organization” (p. 9).

Table 1 organizes the different definitions of sourcing strategies found in the literature. These definitions help distinguish the potential for IT worker impact. They are further categorized into two main types that encompass all of those examined: total outsourcing and selective outsourcing. Insourcing is included as it represents the option of not outsourcing to an external vendor.
<table>
<thead>
<tr>
<th>Type</th>
<th>Definition</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Outsourcing</td>
<td>Involves the allocation of at least 80% (up to 100%) of the IT budget to external vendors.</td>
<td>Lacity, et. al. (1996)</td>
</tr>
<tr>
<td>Complete</td>
<td>Outsourcing the entire IT function of an organization.</td>
<td>Loh and Venkatraman (1991)</td>
</tr>
<tr>
<td>Selective</td>
<td>Outsourcing of specific IT activities.</td>
<td>Lacity and Hirschheim (1995)</td>
</tr>
<tr>
<td>Alliance</td>
<td>Outsourcing of activities that are highly strategic to the organization and for which the external vendor is completely responsible.</td>
<td>Nam, Rajagopalan, Rao, and Chaudhury (1996)</td>
</tr>
<tr>
<td>Alignment</td>
<td>Outsourcing of such activities as consultation or supervision of IT planning.</td>
<td>Nam, et. al. (1996)</td>
</tr>
<tr>
<td>Value-added</td>
<td>Outsourcing of an IT activity where the vendor can provide a level of support or service that cannot be provided cost-effectively internally.</td>
<td>Lacity and Hirschheim (1995)</td>
</tr>
<tr>
<td>Business benefit</td>
<td>Outsourcing relationship where the vendor is responsible for producing specific benefits.</td>
<td>Lacity and Hirschheim (1995)</td>
</tr>
<tr>
<td>Project management</td>
<td>Outsourcing of specific portions of a project.</td>
<td>Lacity and Hirscheeim (1993)</td>
</tr>
<tr>
<td>Cooperative</td>
<td>Outsourcing of an IT activity that is jointly performed by the vendor and the internal department.</td>
<td>Lacity and Hirschheim (1995)</td>
</tr>
<tr>
<td>Facility management</td>
<td>Outsourcing of the human resources necessary to manage the organization’s hardware and software.</td>
<td>Loh and Venkatraman (1991)</td>
</tr>
<tr>
<td>Transitional</td>
<td>Outsourcing the migration from one system to another.</td>
<td>Lacity and Hirschheim (1995)</td>
</tr>
<tr>
<td>Systems integration</td>
<td>Outsourcing the integration of multiple systems within an organization.</td>
<td>Lacity and Hirschheim (1995)</td>
</tr>
<tr>
<td>Remote computing option</td>
<td>Outsourcing computing transactions where client modifications are possible.</td>
<td>Willcocks and Fitzgerald (1994)</td>
</tr>
<tr>
<td>Shared service</td>
<td>Outsourcing computing transactions.</td>
<td>Willcocks and Fitzgerald (1994)</td>
</tr>
<tr>
<td>Reliance</td>
<td>Outsourcing specific non-core IT activities that involve longer term contracts where cost reduction is the main motivation.</td>
<td>Nam, et. al. (1996)</td>
</tr>
<tr>
<td>Support</td>
<td>Outsourcing of specific non-core IT activities.</td>
<td>Nam, et. al. (1996)</td>
</tr>
<tr>
<td>Total Insourcing</td>
<td>Insourcing involves managing and maintaining the IT function internally.</td>
<td>Lacity, et. al. (1996)</td>
</tr>
<tr>
<td>Body shop</td>
<td>Bringing in external support managed by internal personnel.</td>
<td>Lacity &amp; Hirschheim (1993)</td>
</tr>
</tbody>
</table>

Table 1: Types of Information Technology Outsourcing

An aspect that is missing from these different distinctions is whether or not the vendor is located onshore or offshore. Research that has taken place to this point has failed to differentiate the impact of location as it relates to the task or problem being examined. It is, however, crucial to the discussion of the IT workforce. Outsourcing a function to a vendor offshore...
increases the number of challenges simply by having to cross different boundaries. Both the type and location of outsourcing must be considered when researching the potential impact on the IT workforce.

CHALLENGES TO THE IT WORK ENVIRONMENT

Outsourcing has changed the work environment in which the IT worker must now function. It has also created a new form of organization called the virtual organization (Wong and Burton, 2001). Virtual organizations are characterized by crossing organizational boundaries to provide a service. This change has manifested itself in the advent and growth of the virtual team. Virtual teams are defined as teams whose members are geographically dispersed and use “technology mediated communications” (Gibson and Cohen, 2003 p. 4). Understanding the primary issues facing these teams and how individuals have had to adjust is necessary to fully comprehend the changing face of the IT industry.

There are several areas where researchers have focused on the examination of the virtual team. Out of these, there have been three enablers identified: trust, shared understanding, and integration (Gibson and Cohen, 2003). While each of these is important in relation to the traditional team, they are enhanced as areas of concern and focus when the team operates across new and unknown boundaries.

The different boundaries identified in the literature include: temporal, cultural, organizational, geographical, and functional (Espinosa, Cummings, Wilson, and Pearce, 2003). Temporal boundaries refer to those instances where individuals must collaborate across different time zones. Cultural boundaries involve individuals with different cultural backgrounds working together. Organizational boundaries are realized when working with individuals in different organizations. Geographical boundaries involve individuals being separated by distance, and functional boundaries involve working with individuals from different functional areas. It is crucial when painting a picture of how work has changed for the IT worker to consider the additional challenges encountered due to crossing these multiple and extensive boundaries.

The primary enabler to the success of any team is trust (Gibson and Cohen, 2003). Differences caused by the many boundaries that virtual teams must cross create enhanced barriers to trust. In virtual teams, it takes longer to establish trust, which can also impact the performance of the team. Communication is an area that facilitates trust. The importance of communication is enhanced as different methods for operating in the team are altered by the virtual environment. Learning to communicate in these new environments is necessary for the virtual teams to achieve any level of success.

A second enabler of virtual teams is the establishment of shared understanding (Gibson & Cohen, 2003). It is essential that team members engage in interactions that support the overall mission of the team. This is difficult when the team consists of individuals with very different backgrounds. Outsourcing has increased the amount of interaction between IT workers with varying backgrounds adding to increased challenges for the team.

The third enabler of virtual teams, integration (Gibson & Cohen, 2003), relates to mechanisms in place to allow for the incorporation of different systems, policies, etc. when working across different boundaries. It plays a crucial role in the development of a team structure that allows for the mutual creation of products and delivery of services. Integration is an area that requires careful consideration.

In addition to these environmental challenges encountered due to increased organizational involvement in outsourcing, challenges must also be acknowledged that relate to the individual IT worker. Examining these potential problem areas along with the ideas presented above assist in moving towards a more complete understanding for managing and studying the impact of outsourcing on the IT workforce.

CHALLENGES FOR THE IT WORKER

As jobs continue to be outsourced both onshore and offshore, the challenges facing the IT worker continue to grow. Drawing from existing research, areas to examine include occupational stress, job security, commitment, satisfaction, motivation, psychological contracts, job involvement, turnover intention, and job embeddedness.

Occupational stress is typically associated with unpleasant emotions related to an individual’s work. Research has shown that the climate in an organization has a direct positive causal relationship with job satisfaction and positive work experiences (Hart and Cooper, 2001). Negative relationships are developed between organizational climate changes and such issues as morale and distress. It is also extremely important to the discussion of outsourcing as any change in the organization’s structure can dramatically impact the individual and increase stress related anxieties. Increased stress levels have been shown to be associated with increased organizational downsizing (Davis, Savage, and Stewart, 2003). It is expected that as the frequency and expansion of outsourcing within and across organizations increases, organizational stress would also increase. The more functions that are outsourced and how it changes the individual’s concept of the job, work group, and organization
dramatically changes perceptions of stability and security. Consideration must also be given to the location of the vendor as movement to offshore contracts would also increase these perceptions.

Job security has also been researched extensively in the organizational behavior literature. As individuals perceive changes occurring in the organization (i.e. downsizing), perceived job security tends to decrease. In relation to the recent and consistent surge in outsourcing of IT and other service industries, individuals would be expected to have increased perceptions of job insecurity. This in turn can impact the individual’s performance and motivation. As outsourcing becomes more diverse and extensive in its reach, this is likely to become a significant challenge for IT managers. The impact on IT workers could also potentially expand to a lack of security as it relates to the profession as a whole.

Organizational commitment is another area that necessitates attention in relation to outsourcing. When changes occur in an organization that cause shifts in the workforce, individuals will begin to experience changes in their levels of organizational commitment. Much of the work in this area has centered on perceived organizational justice (Gilliland and Chan, 2001). Individuals view the actions of the organization as being either fair or not. These views can relate to decisions made by the organization related to outcomes or processes (distributive and procedural justice).

Additionally, psychological commitment has been researched extensively in relation to organizational change (Gaertner and Nollen, 1989). It is defined as “non-instrumental attraction to and identification with the goals and values of the organization, excluding propensity to stay in the organization” (p. 975). “Commitment is higher among employees who believe they are being treated as resources to be developed rather than commodities to buy and sell” (p. 987). When individuals are transferred as part of an outsourcing contract, they are seen as assets. Moving staff from one organization to the third-party vendor changes the perspective of the job. Managers must be aware that any shift in an individual’s job including their workgroup can have an impact on commitment.

An area that traverses almost all discussions on employees and organizations is that of job satisfaction. Job satisfaction is defined by Locke (1976) as “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (p. 1304). Many theories have been applied to the study of job satisfaction: Herzberg’s two-factor theory and Hackman and Oldham’s job characteristics model (JCM) (1976) are two that have received wide spread attention. The measures and components of different satisfaction models are varied, but the importance to this discussion remains that outsourcing and dramatic organization and industrial changes can impact an individual’s level of satisfaction.

Motivation is another equally important area of study in any organizational change situation. As individuals perceive risk or challenges to their jobs, especially when the risks are associated with their continuance in a particular role or profession, motivations change. It has been shown that change resulting from downsizing can impact the worker’s motivation, which in turn impacts the productivity of the organization (Makawatsakul and Kleine, 2003). Outsourcing poses a threat to an individual’s perceived opportunities for advancement as well as achievement, both of which have been shown to be motivators for IT professionals (Cougar, 1988).

“Employee obligations, embedded in the context of social exchange constitute the psychological contract” (Robinson, Kraatz, and Rousseau, 1994 p. 138). These contracts encompass the beliefs held by an individual regarding what he/she owes the organization and what the organization owes the individual in return. Any change in the perceptions of the individual employee can impact the psychological contract with the employer. It is, however, more likely that change in the contract will occur when the employee feels as though the employer is not meeting its obligation (i.e. moving IT functions to a third-party). Increased outsourcing activity has the potential to directly impact the psychological contract.

Another concept at the core of many workforce issue discussions is that of job involvement. Job involvement has been defined many ways, but the essential idea is that it represents the extent to which an individual psychologically identifies with his or her job (Comer, 1995). It has been shown to be related to satisfaction, motivation, and virtually every other work force dynamic discussed thus far. When the organization increases its engagement in outsourcing, it is possible that individuals will experience changes in identification with their job. In a study by Allen, Freeman, Russell, Reizenstein, and Renz (2001), it was suggested that individuals with high levels of job involvement “may be the most sensitive to changes in the work environment” (p. 159). It is therefore important to consider how the level of job involvement would impact an individual’s perception of outsourcing at the organizational level and across the profession.

A final major category related to individual behavior in organization is turnover intention. The implications that outsourcing has on an individual’s decision to voluntarily leave the organization can be increased depending on how the process is managed. Lack of career prospects was shown by Lee (2002) to be a reason for higher levels of turnover among computer professionals. As outsourcing continues to move jobs offshore, career opportunities may be seen as decreasing, thus increasing an individual’s intention to leave the information technology field. Other variables that impact turnover intention...
include satisfaction and perceived alternatives. They have been shown to be the primary determinants of an individual’s intention to stay with a particular organization (Mitchell and Lee, 2001).

The concept of voluntary turnover has recently been expanded to include job embeddedness. Job embeddedness involves an “individual’s links to other people, teams, and groups” and “perceptions of their fit with the job, organization, and community” (Mitchell, Holtom, Lee, Sablinski, and Erez, 2001 p. 1102). As an organization makes changes to these aspects of an individual’s work environment, there can be expected changes in the level of job embeddedness for the employee, which in turn can increase the likelihood of voluntary employee turnover.

By identifying some of the major issues related to the workforce in times of organizational change the value of properly managing the process of externalizing IT functions and activities is brought to the forefront. There has virtually been no research conducted on the impact of outsourcing and the IT worker. As a beginning to identifying the importance of this area and the need for the gap to be filled, a general framework is developed and presented.

FRAMEWORK OF IT WORKFORCE CHALLENGES

The general framework developed here (Figure 1) presents a means of categorizing the general workforce related issues that arise in varying types of outsourcing arrangements. The two main factors being analyzed as part of the framework are those related to the environment and those related to the employee. Environmental factors include those areas discussed in relation to challenges to the workforce environment caused by engaging in outsourcing. Depending on the type of outsourcing contract, the importance of environmental factors can change.

As organizations determine the type of outsourcing in which they want to engage, it is necessary to consider the impact it can have on IT staff within the organization. For example, when entire components of an IT department are outsourced, there is typically a reduction in staff of those individuals that performed the function or those individuals are moved to another function within the organization. Therefore, the impact on remaining IT staff can be much more detrimental. The issues previously discussed will become more salient. There is an obvious impact as well on those individuals that lose their jobs completely. Potential changes to their perception of the IT profession can impact their career focus and expectations.

Employees may perceive the decision to outsource offshore as having more of an impact on their career and job alternatives. As previously discussed, the reduction in perceived job alternatives is a direct determinant of an individual’s level of satisfaction, which relates directly to turnover intention. A change in satisfaction impacts motivation, performance, etc. It is therefore crucial that managers acknowledge these factors in times of change, especially when the changes are more dramatic.

The four areas of the framework represent different extremes along a range of outsourcing options. It is important to note that these are only extreme representations of possibilities along the continuum of outsourcing options.
**Area 1:** Area one represents lower level challenges to the employee and environment that are expected when the type of outsourcing is selective and the vendor is onshore. An example of a type of outsourcing occurring with these lower levels of impact would be **support, reliance, or shared serviced** (Table 1). These types do not represent a tremendous threat to the IT worker or their environment. Since the vendor is onshore, the boundary conditions that must be crossed are minimal and could include organizational and functional boundaries. Only slight changes in employee satisfaction or motivation might occur at this level, depending on their perspective and position related to the function involved. Commitment would not be expected to vary either as the transfer of functions would not likely involve a reduction in staff or dramatic change in the organization.

**Area 2:** Area two represents outsourcing arrangements with a higher level of employee impact. As organizations increase their participation in outsourcing by engaging in types that are more comprehensive, the employee is faced with increased levels of job insecurity as well as decreased levels of motivation and satisfaction. Examples of selective arrangements might include business process, project management, or cooperative outsourcing. It is along this range that the worker may become detached from the organization, either by their function being outsourced to a vendor, or by the impact of more encompassing selective outsourcing arrangements. Challenges related to crossing organizational and functional boundaries would be expected at this level. Increased involvement in cross organizational collaboration is expected as the organization enters more complex arrangements.

**Area 3:** Area three involves the engagement of selective outsourcing to offshore vendors. These activities would be similar to those in area one. The main differences occur in the increased environmental factors that arise when working with individuals offshore. Boundary conditions are added that include temporal, cultural, and geographical elements. The workers involved in outsourcing arrangements crossing these boundaries are subject to increased levels of uncertainty as they enter into unfamiliar territory. The impact on the individual employee is not considered high, since the amount of work moving offshore is not as extensive. Selective outsourcing arrangements that involve a limited amount of the IT budget or are considered non-core might be included here.

**Area 4:** Area four includes arrangements that are likely to have the most impact on the IT employee and the environment in which they work. As jobs are moved offshore and more of the IT resource is allocated to these offshore vendors, it is likely that the individual will be faced with implications that extend beyond the organization. Individuals that work increasingly with the offshore vendor are faced with the crossing of multiple boundaries above the organizational boundary generally experienced with onshore vendors. Enablers to those environmental changes become very salient. Interactions are expected to be more frequent as the type of outsourcing arrangement becomes more encompassing of IT activities. There are also implications for the individual related to career experiences. As IT workers see more and more jobs moving to offshore vendors, the level of perceived alternatives diminishes. When a particular function that once was performed by the IT worker is now available at a much lower cost overseas, then it is possible the worker will feel challenged to learn new skills within the profession or even outside of the profession.

The general framework presented in Figure 1 was created to serve as a visualization of the increased potential for workforce challenges in the IT profession due to increased participation in outsourcing. Depending on the type of outsourcing in which organizations engage, there will be different combinations of workforce challenges. As the ventures move closer to area four, implications for the IT profession increase. The potential for career change increases. There are many implications for research into these areas that warrant attention based on this general discussion.

**IMPLICATIONS FOR RESEARCH**

With the momentum behind outsourcing ever increasing, it is necessary to have a more comprehensive understanding of the individuals involved when such decisions are made. Offshore vendors have proven themselves to be viable delivery mechanisms for IT service functions once thought only to be possible within the organization. As prices for outsourcing services stay competitive and traditional organizational boundaries continue to become invisible, organizations will more than likely increase their participation in such ventures. In this regard it is necessary to step back and examine the potential for challenges for the IT worker and the profession.

From a general perspective, research should begin to examine the implications for outsourcing on the IT profession as a whole. The perceptions that individual IT workers hold regarding outsourcing can potentially impact their perception of the profession, career related opportunities, and turnover intention. This relationship should be examined from a theoretical perspective and tested empirically. If negative perceptions of outsourcing supersede the individual’s level of satisfaction, motivation, etc., the potential loss in performance, productivity, and innovation could be detrimental. As jobs continue to shift and move, the nature of the profession will be changed. It is possible that the qualities that were responsible for drawing individuals to the IT profession could be diminishing to a point where different characteristics form the typical IT worker.
The “old” view of the psychological contract is also changing with the advent of outsourcing and other shifts in the work environment. As employees move jobs, organizations, or professions, the nature of what forms the psychological contract can change dramatically. Schalk and Rousseau (2001) acknowledge that as firms begin to engage in inter-organizational relationships, psychological contracts may be changed or new ones may exist that cross organizational boundaries.

Future research should also consider the impact of different types of outsourcing on the workforce. Outsourcing has been studied from financial and administrative perspectives. Theories used to study outsourcing have included administrative innovation theory, transaction cost theory, and theory of economies of scale (Costa, 2001). As discussed, it is easy to see that the potential for theoretical examination of outsourcing from a new perspective is warranted. Implications could possibly include a better understanding of why information technology workers shift jobs or careers. It could also assist in understanding the different aspects that relate to an individual’s intention to leave a particular organization.

Other areas that require further evaluation include the extent to which perceptions of outsourcing have impacted individual IT workers perceptions of job alternatives and job related satisfaction. As with research on downsizing, it is necessary to determine the impact of this type of change on the workers that remain with the organization. It is also necessary to determine factors that will maintain or even increase performance and productivity in these times of change.

These areas only begin to scratch the surface of potential implications for research in relation to outsourcing and the IT workforce. It is necessary that future consideration be given to these concepts and how they relate to the many varieties of outsourcing in which organizations already engage. It is estimated that 20% of workers turnover each year from the information technology profession (Thatcher, Stepina, and Boyle, 2003). As outsourcing increases, these numbers are likely to jump dramatically.

CONCLUSION

This review has focused attention on the various aspects of the IT workforce that have virtually been ignored in relation to the increased involvement of organizations in outsourcing. Specifically examined were challenges that relate to both the environment in which the IT worker must function and the worker in general. A framework was developed and introduced that generalized these workforce issues with a goal of providing a beginning to better understanding the implications of IT outsourcing.

REFERENCES


