

## Communications of the Association for Information Systems

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Volume 24

Article 11

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1-2009

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### Recommended Citation

Obal, Lorie (2009) "Microsourcing - Using Information Technology to Create Unexpected Work Relationships and Entrepreneurial Opportunities," *Communications of the Association for Information Systems*: Vol. 24 , Article 11.

DOI: 10.17705/1CAIS.02411

Available at: <https://aisel.aisnet.org/cais/vol24/iss1/11>

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# Communications of the Association for Information Systems

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## Microsourcing - Using Information Technology to Create Unexpected Work Relationships and Entrepreneurial Opportunities

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### Abstract:

Offshore outsourcing has increased to the point where it is now part of the mainstream consciousness. The same tools that enable remote work sharing in corporations also allow individuals to outsource their own work (microsourcing)—either with company approval or covertly. As an innovative work practice, microsourcing can bring greater flexibility to the workforce. It also has the potential to undermine control of the work process as well as introducing new risks and ethical issues to the workplace. The appearance of brokers to facilitate microsourcing suggests that entrepreneurs perceive there is a demand for these arrangements. Due to the potential threats to intellectual property, even employers and managers who do not use or approve of the practice should take some steps to educate themselves about microsourcing. This research is the first known attempt to use a theoretical framework to understand microsourcing as an individual level work strategy as well as its context and drivers. This study uses Structuration Theory as a guideline in the investigation of different microsourcing implementations.

Volume 24. Article 11. pp.161-174. Januarv 2009

The manuscript was received 9/24/2008 and was with the author six weeks for one revision.

### I. INTRODUCTION

The capability to practice offshore outsourcing has spread from the corporate to the individual level due to the availability of cheap, international telecommunications channels. Knowledge workers in high-cost locations now can take advantage of the same types of wage arbitrage with lower-cost locations, which was formerly the exclusive province of large corporations. Global competition and the so-called “flattening of the world” [Friedman2005], as well as the pressures of living in high-cost locations [Conlin and Mullaney 2005] have driven reevaluations of traditional work arrangements. In some cases, the advent of personal-level outsourcing may have been driven by the steady decrease in personal time.

The popular press has highlighted accounts of outsourcing moving down to the individual level to include functions such as editing, custom programming, and tutoring [Hammersley 2005; Rowan 2005; Toppo 2005]. Additional factors such as shortages of highly skilled professionals have created outsourcing arrangements in formerly unthinkable areas such as medicine. “Nighthawking” services that outsource radiology consults are increasing and have inspired outsourcing other medical services such as ICU monitoring [Gencer 2006; Wachter 2006]. The combination of these factors and outsourcing implementations may have fostered the psychological legitimization of personal outsourcing—outsourcing all or part of one’s own job. Most respondents were using microsourcing within an IT context such as software development or Web design, but there is nothing to prevent the microsourcing of any type of knowledge work. This research used qualitative interviews to investigate the potential theoretical constructs that can serve as a framework for studying microsourcing as well as types of microsourcing implementations.

#### Literature Review

The current literature and popular press indicate that outsourcing is an evolving process creating new frameworks of employee/employer relationships [Kishore et al. 2003]. Employee downsizing facilitated the deterioration of psychological contracts between employees and employers [Dabos and Rousseau 2004; Hiltrop 1995]. General outsourcing frameworks in the literature may not be suitable for microsourcing due to their focus on either corporate strategic initiatives [McIvor 2000] or different theoretical perspectives [Hancox and Hackney 2000]. Certain dimensions and characteristics of the FORT framework [Kishore et al. 2003] such as “alliance” relationships based on previous working relationships and mutual trust are applicable to microsourcing; however, a new framework may be required due to the lack of strategic emphasis and smaller scale of microsourcing projects.

Structuration Theory [Giddens 1984], has been used as a theoretical basis in IT literature for describing the development of social structures and human interaction such as the development of cross-cultural software development teams [Walsham 2002]. An expansion of this theoretical model, Adaptive Structuration Theory (AST) was developed to include the effects of social structures and information technology [DeSanctis and Poole 1994]. This framework indicates technological institutions can serve as the basis for social structures and rules for behavior within the context of the technology-interaction relationship [DeSanctis and Poole 1994].

Microsourcing can be described within the context of Structuration Theory as “the dynamic interaction of the individual and opportunity” [Sarason et al. 2005]. Agents (entrepreneurs) interpret and modify interpretations of social systems in a co-evolutionary process [Sarason et al. 2005]. Structuration Theory describes entrepreneurial action that is enabled and constrained by conscious selection, imitation, and modification of business “scripts” that occur within social and business structures [Chiasson and Saunders 2005]. Scripts are repeatable human actions used to facilitate quick actions in particular settings. Scripts have been classified by Chiasson and Saunders [2005] as “legitimate,” “powerful,” and “competent.” Legitimate scripts are considered morally and practically acceptable for business and social settings. For example, frequency of use or cultural acceptance may provide legitimization of microsourcing practices. Some participants may not view microsourcing as “cheating” as long as the customer receives a product that meets the required standards. Powerful scripts may be derived from collaborative IT technologies that are widely available to workers at all levels. Competent scripts result from successful experiences in corporate outsourcing or geographically separated collaborative teams.

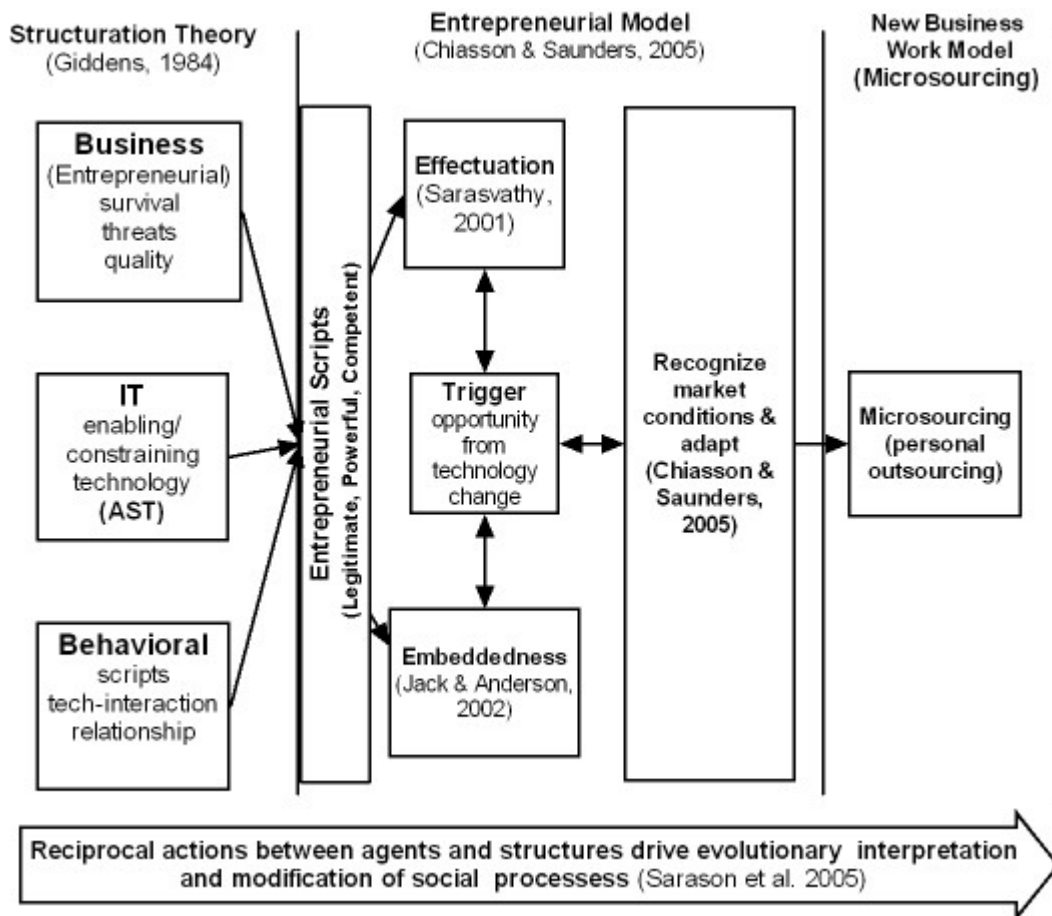
It is reasonable to theorize that the same script-producing forces of competition and globalization driving large corporate outsourcing initiatives inspired parallel, small-scale script implementations geared to professional survival or advantage at the individual level. Chiasson and Saunders [2005] described the survival value produced by scripts: “... a new and unique script may produce a new and legitimate product or service; this is where differential power occurs.” The competitive advantage created by scripts in “traditional,” corporate-level outsourcing may become

legitimized in the eye of the individual who subsequently attempts to apply the model at the personal level. The literature linking Structuration Theory with entrepreneurial advantage suggests that scripts with widely held legitimacy may not be as powerful for entrepreneurial gain as changing scripts that have less widespread legitimacy [Chiasson and Saunders 2005]. That is, the competitive advantage arises due to the unique or innovative qualities of a particular script. Innovative scripts may have more power and be of interest for examining the practice of microsourcing.

Jack and Anderson [2002], used the term “embeddedness” to describe the link between the entrepreneur and the environment [Jack and Anderson 2002]. Embedding describes an understanding of the social resources needed to support the entrepreneurial process and the “realization of opportunities conditioned by the role in the social structure” [Jack and Anderson 2002]. The entrepreneur realizes and utilizes aspects of a given structure to achieve their goals. These activities may include developing social networks, enacting/reenacting a social structure and maintaining the structure [Jack and Anderson 2002]. In the context of microsourcing, embeddedness is used in this study to describe how the entrepreneur becomes part of the local (offshore) structure, either directly or through personal connections.

The various tools/artifacts available in an environment, such as IT, become the means for creating entrepreneurial effects. Sarasvathy [2001] used the term “effectuation” to describe the process of selecting between possible uses of available tools: “Effectuation begins with a given set of means and contingent human aspirations to select from a set of possible effects imagined by the effectuator(s).” This definition includes exploitation of unexpected contingencies and the creation of new markets through alliances and cooperative strategies [Sarasvathy 2001]. Therefore, effectuation can be used to describe the unexpected outgrowth of entrepreneurial activity fostered by personal connections and supported by IT tools.

This study proposes the following theoretical framework using Structuration Theory and the entrepreneurial scripting model for the study of microsourcing (See Figure 1).



**Figure 1. Theoretical Framework for Microsourcing Research**

This diagram was created to synthesize and visualize the possible theoretical explanations found in the literature review as part of the case study methodology — i.e., outlining candidate theories [Yin 1994]. Chaisson and Saunders [2005] proposed Structuration Theory to resolve diverse views in opportunity research. Their work served as the basis for incorporating other applicable theoretical views linked by the common thread of Structuration Theory to study micro-sourcing. The use of this common theoretical vocabulary was intended to facilitate comparison with other outsourcing and entrepreneurial studies as well as future micro-sourcing study [Yin, 1994]. The resulting theoretical outline (Figure 1), represents the development of behavioral scripts derived to meet new opportunities [Chaisson and Saunders 2005] across an evolutionary business environment based on Structuration Theory [Sarason et al. 2005]. Other theoretical constructs within this context include the enabling effects of new IT tools (AST) and Effectuation as well as changing relationships between the entrepreneur and the environment (embeddedness) [DeSanctis and Poole 1994] [Jack and Anderson 2002; Sarasvathy 2001].

The far left section of the diagram (Figure 1) illustrates the use of Structuration Theory as the theoretical foundation for the evolutionary process of interpreting reciprocal actions between agents and social, technological (AST) and business environments. The actions of agents and influences of these environmental elements create new behavioral scripts to facilitate entrepreneurial activities.

Building upon the behavioral adaptations the business environments and the role technology can play in changing behaviors (AST), the middle section of Figure 1 illustrates the evolving entrepreneurial environment generated by the new entrepreneurial scripts. These scripts are realized through the selection of tools (effectuation), which can include both IT and people in the case of micro-sourcing. Successful realization of entrepreneurial scripts also requires an understanding of the necessary social resources (embeddedness). Environmental opportunities further affect the choice of tools and social resources as they trigger new responses to market conditions. New technologies serve as triggers for exploiting new alliances (effectuation) as well as reinforcing links between the entrepreneur and the environment (embeddedness). The dual arrowheads indicate the reflexive nature of action and environment that is central to Structuration Theory in the entrepreneurial environment [Chaisson and Saunders 2005; Jack and Anderson 2002; Sarasvathy 2001].

The penultimate stage of the emerging entrepreneurial model is the recognition and adaptation to market conditions. This leads to the far right section of Figure 1. New adaptations arise to meet new market conditions and opportunities [Chaisson and Saunders 2005]. Micro-sourcing is hypothesized to be the end result of the recognition of emerging opportunities.

Figure 1 was used as the theoretical guide for developing the semi-structured interviews and survey questions. The survey and interviews included questions on how IT was being used and how it enabled micro-sourcing relationships (AST), as well as business/entrepreneurial drivers and behavioral aspects of the remote work arrangements with leveraging of opportunities (script development). Questions to examine behavioral scripts included comfort level with micro-sourcing, the level of official sanctioning by the primary employer (legitimization), how were the necessary social networks and levels of trust levels of trust developed (embedding) and how choices were made between uses and types of technology (effectuation).

## II. DATA COLLECTION

Data collection consisted of a combination of a confidential online survey, semi-structured interviews and a case study of a firm that provides micro-sourcing services. The survey attempted to reach geographically dispersed outsourcers and their employees (“outsourtees”) via online discussion forums. The interview participants included outsourcing practitioners as well as individuals with personal knowledge of their colleagues’ micro-sourcing practices. Interviews were also conducted with IT managers in government and aerospace to assess concerns and potential impacts if micro-sourcing were to occur in their departments. The case study consisted of a series of in-depth interviews with the CEO of a firm acting as an intermediary between micro-sourcing customers and overseas providers as well as providing actual micro-sourcing services/employees.

### Survey Responses

The online survey consisted of a mixture of 34 multiple choice and open-ended answers. The survey was exploratory with an emphasis on qualitative responses. It consisted of two tracks: one for outsourcers and the other for “outsourtees.” Questions were designed to address the motivations for outsourcing from both perspectives as well as types of projects, methods used and comfort levels with the outsourcing arrangements. Survey respondents were solicited from online developers’ forums in English-speaking countries.

Respondents to the outsourtees track indicated outsourcing agreements were developed through both personal contacts and Web sites, which included government job sites and software developer mailing lists. All of the



outsourtees indicated they were hired to do some type of programming in areas including Web design, application software, ERP, telecommunications, healthcare and digital signaling. All outsourtees indicated they were using the Internet, including VOIP, to do their work and communicate with their employer as inevitable parts of IT work itself. Fax and traditional telephone communication were also mentioned. Both informal verbal and formal written contracts were used and the people who hired them were a mixture of regular employees and freelance contractors working for the parent company.

Microsourcing arrangements were developed primarily through friends or personal contacts. Motivations for entering into microsourcing included flexible schedules and chances to make more money while gaining more experience in programming professionally. Respondents indicated levels of comfort with the microsourcing arrangement ranging from very comfortable to very uncomfortable. Other comments made by respondents concerning microsourcing included the perception of risk for the primary employer and that Open Source software was good for microsourcing since it would lower costs for consultants.

Respondents to the outsourcers track of the questionnaire also indicated that friends/personal contacts were the primary method for developing the microsourcing arrangement. Outsourcers stay in touch with their employees using various forms of desktop sharing, e-mail and instant messaging. One respondent indicated setting up the initial communication was problematic, but after the initial hurdle there were many possibilities for collaboration. Another respondent said microsourcing was an effective work relationship because it offered more flexibility and the ability to make real-time changes with developers. Most respondents to the questionnaire indicated their parent company or primary employer for the project knew about the microsourcing arrangement.

### IT Manager Interviews

IT managers from government, the aerospace industry, a software company and a consultant for international IT outsourcing projects were interviewed about their concerns and contacts with microsourcing. One interviewee from city government indicated he was not concerned about potential microsourcing due to the small size of his department. He felt it would be impossible for the practice to go unnoticed. A respondent from aerospace said the stringent nondisclosure and U.S. government security requirements at his company served as sufficient safeguards since violating these agreements would result in incarceration. Another IT manager from aerospace had conducted a microsourcing project with approval from her supervisor. The relationship proved unsatisfactory as the microsourcee eventually disappeared and abandoned the project. This case is more fully discussed under the Persistence of Work Environment section. A manager from the software company said microsourcing was permitted at his company, and there were procedures in place to govern the practice. The international IT consultant said he had firsthand knowledge of friends and colleagues who engaged in microsourcing. He described several microsourcing implementations that had occurred without the knowledge of the primary employer. He stated, "There is quite a bit of this sort of thing [microsourcing] going on," although he could not provide quantitative data. The themes that appeared in the interviews served as the basis for clarifying the microsourcing definition and classification of microsourcing types.

### Classification of Microsourcing Types—Results of the Interviews

The term "microsourcing" has been used thus far in a business context to mean outsourcing small, discrete functions or applications. This study uses the term to emphasize either outsourcing by individuals of either their own personal work or small-scale subcontracting initiated by individuals within their company. This outsourcing may be covert (outsourcing without the knowledge of the primary employer) or overt (the company sanctions individual level outsourcing). The latter case can also occur in a multi-tiered or re-branding approach that may not be transparent to the customer. A more formalized approach in the form of microsourcing brokers has emerged online as this methodology continues to evolve. In all cases, there may be some overlap of issues that concern stakeholders. Respondents described work implementations and accountability issues that may be classified in different ways. These classifications are intended only as guidelines.

#### Covert Microsourcing

Although this model can occur within a company sanctioned context as a form of re-branding, this paper will focus on arrangements between friends or peers (Peer-to-Peer or PTP) as the most extreme example of covert microsourcing. The PTP model involves a mutual agreement between friends or colleagues. Respondents said they would forward work to individuals with whom they had worked closely. In those cases, they had direct knowledge of the offshore worker's capabilities, thereby eliminating the need for pre-employment screening. This "persistent expectation" of performance was also found in the overt microsourcing model and has been discussed as an aspect of managing outsourcing contracts during corporate spin-offs [Ho et al. 2003]. In some cases, these agreements were strictly verbal and based on mutual trust. The overt PTP model may involve written contracts; however, these are mainly to formalize what the outsourced worker will be paid and are presumably unenforceable.

An interesting aspect of the PTP model is the reliance on mutual trust and personal relationships. This has also been cited as a factor in outsourcing literature as the mutuality of beliefs between parties that serve as the basis for an unwritten contract [Koh et al. 2004]. One respondent outlined a “tag-team” method of relaying work to trusted offshore workers:

A group of workers for a large corporation in a north American office wanted to offshore some of their own work; however, they did not have any personal contacts with workers in India. They forwarded their work to a colleague in another branch office who did have personal contacts and he forwarded the work directly to India. The end result was the workers created their own offshore “subsidiary” of several workers for whom they provided the work infrastructure i.e., workstations, good lighting, etc. without the knowledge of their parent company.

Another example of leveraging trust occurred in the case of a consultant working in the U.S. who became overwhelmed:

...the consultant couldn’t cope with the workload. He had a friend in India to do the work for him. He gave access to the company server against [in violation of] the company contract!

The preceding examples presumably indicate the strength of the trust between outsourcer microsourcing arrangements within larger companies, particularly if the outsourcer has the resources to monitor and maintain secrecy—perhaps with system administrator authority—of the outsourcing arrangement.

Another facet of PTP trust is the reliance on qualifications between professionals. Outsourcing radiology interpretations has become a fairly well-documented practice in the last several years [McVey 1999; Wachter 2006]. What is not apparent on the surface is the implicit trust placed upon offshore physicians by their onshore counterparts. One respondent indicated in some instances, physicians sign off on radiology impressions as if they were their own. This was possibly not an isolated observation as the American Radiological Association has issued a policy statement on this practice; this is a violation of their plagiarism policy [ACR 2006]. Considering the potential malpractice risk for a U.S. physician, one must assume such trust placed in an overseas colleague must be exceptionally high.

#### Overt Microsourcing: Re-Branding or Multi-Tiered Outsourcing

In some cases, microsourcing is a permitted practice. A manager for a software firm in the Middle East explained that employees were allowed to bring offshore developers into projects if there was a compelling need. The basic methodology was outlined as follows:

A regular employee of the firm determines that the current manpower resources will not meet a project deadline. He informs management that it is necessary to outsource a portion of the work and proceeds to recruit an offshore developer who is either a friend or former co-worker: The employee [regular employee] shifts to becoming a micro-manager—he is still responsible and must manage the work. The agreement is mainly built on trust for small projects (payment less than \$1,000). There may be a formal nondisclosure agreement.

In the previous scenario, the employee sent the specifications to the offshore worker. If the offshore worker needed access to the company server, it was up to the supervisory employee, who is now a microsourcing manager, to arrange access. The respondent indicated there was an inherent level of security in the way such project was set up. The testing ground was separate from the rest of the company. Even regular employees had limited contact with primary content and they were held accountable for any “leakage” due to microsourcing. It is interesting to note that the client of the company is not informed that microsourcing is occurring. The work is presented as taking place in-house; it is a form of re-branding. The respondent also noted that intellectual property protection was not of particular concern because his subsidiary did not hold the intellectual property of the firm. He also cited the use of modular development to prevent large portions of the project from being exposed to microsourcing.

A microsourcing broker gave several small-scale examples of re-branding that also illustrate the illusion of individual productivity that may be fostered by microsourcing:

I have a client who’s a sole proprietor and operator of a software company. . . Basically he gets contracts from companies as a freelancer, and he basically doesn’t tell them that he’s outsourcing things. I do know of another guy who caters specifically to marketing agencies who use him as a Web builder. He uses our system (microsourcing brokerage) to do that, to make it happen so he can punch things out quickly enough for them. So he’s actually doing that (microsourcing) constantly.

The microsourcing broker described a client of his who used microsourcing to improve perceived productivity and customer satisfaction. The marketing client normally has one onshore online media buyer per five to six customers and each buyer normally dedicated one day per week for each customer. Now the onshore media buyers are managing five other offshore buyers who do research full time for the marketing firm's clients: "The cost to him (marketing client) is one extra employee to improve level of service tenfold. In that regard he is using microsourcing to improve service to clients— [the] level of research they are getting." This approach has also been used to keep an offshore employee on-call for client emergencies. Even though the offshore worker was being paid as a full-time worker, the cost differential made him a "part-time" employee.

Since the inception of this study, online, brokered models of microsourcing have appeared on the Internet. Two distinct models have been observed. The first involves direct broker control over management of the offshore work site in the form of providing the physical setting and offsite managers. Quality control is jointly maintained by project managers and client reviews. A second model involves a broker who does not control the offsite location and uses purely Web-based management tools. Responsibility for quality control rests with the client through the use of a rating system. Unfortunately, representatives for the second broker model were unable to participate in this study; therefore, the offsite management model served as the basis for the microsourcing case study in the next section. The case study approach was used for an in-depth exploration of the mechanisms used to support microsourcing in formal, brokered arrangements.

### Broker Model Case Study of Supplier with Offsite Management: StaffOffshore

This research gathered information on this model through a series of interviews with the CEO of StaffOffshore. StaffOffshore is based in Canada and works with suppliers in the Philippines to supply workers for North American clients. These suppliers provide basic HR services in the form of gathering and screening resumes of potential employees. Resumes of candidates who pass the appropriate competency testing are then forwarded to StaffOffshore. In this implementation, the emphasis is on getting resumes to clients—the client, not the broker, makes the hiring decision after reviewing the resumes and doing any online interviewing they feel is necessary. Hiring agreements are currently for six-month periods. The CEO explained it was not currently cost effective to broker agreements for shorter periods of time. The deal is finalized with a formal contract signed by the client and employee.

The physical work environment is provided and controlled by StaffOffshore. This involves providing office space and computing equipment, which includes biometric log-ins for the computing workstations. There are also shift and project managers at the remote site. Shift managers are primarily concerned with monitoring the overall work situation including site security and basic worker productivity. They observe whether work-related activities are being carried out such as reading documentation that is not apparent with remote worker monitoring by keystrokes. Project managers have MBAs and are assigned to specific projects and deal with project quality and coordination issues. Currently project managers are automatically assigned when projects involve 10 or more employees. The company enforces this policy and considers it proactive to preventing project failures. The project manager's job is to be vocal about getting what the client needs, that is, give verbal directions for anything that is not on paper.

#### Hidden Costs of Management

Clients are also involved in the management process. Currently client-side management consists of e-mail, instant messaging, voice contact and remote video monitoring of the offsite workers. The company has its own training program to teach clients how to manage their offshore workers effectively. The CEO indicated that client-based management was one of the most crucial as well as subtle aspects of small project success (under 10 employees—without assigned project manager). Besides cultural differences, communicating project specifications in great detail may be lost despite the presence of a Web cam:

It does take more time to explain something to someone online, even if you're using a Web cam ... It's much more difficult to convey what you need—whether it be a designer, programmer, whatever it is. It's almost as if there was some telepathy going on if you were face to face—it's so different it's hard to explain.

Even with the on-site supervision of a project manager in the Philippines, the client must still be able to communicate the project specifications to the manager. This phenomenon was examined in the literature [Fussell et al. 2000; Fussell et al. 2003; Gergle et al. 2004] are a few examples and this would appear to be an integral component of remote management.

The CEO went on to explain the effect of remote communication on project cost and productivity: "You will see there is time in terms of cost that you will have to add to the savings. . . They may not realize it takes a lot more than that to work profitably, and it takes time to develop that as you would with any in-house employee." It was surprising to



learn how intense and time consuming the initial management process can be. Initially, clients tend to ask for hourly reports: “ ... it’s always like—is this person really doing the work over there? Are they **really** in an office in the Philippines? It takes a little time, as that trust goes up the reports go down—unless there’s cheating.” “In some cases, hourly reports are not considered a hindrance. For example, in some advertising work up-to-the-minute information is needed to “do something on the fly.” Other cost drivers may include local labor laws. For example, in the Philippines, at the end of the year, employers are required to pay an extra month’s work.

### Project Management and People Skills

The CEO also indicated that it is necessary for clients to have project management skills. This model is not for people who want a technology product but are unable to manage its development. StaffOffshore clients are asked up front if they can manage their projects. He emphasized that attempting to outsource just based on the cost differential will not be successful—planning and management are crucial as well as staying abreast of project management best practices. Despite the seemingly impersonal nature of hiring remote workers, basic people skills are important: “We explain that this is an individual that’s working solely for you... You give them encouragement when things are going well ... don’t just treat them as pixels on a screen. Treat them as if they were an employee that is right next to you. We try to drive that point home. Psychologically people don’t consider that naturally.”

### Persistence of Work Environment

The brokered model, in which the remote infrastructure is provided, has advantages over PTP and other freelance approaches besides work verification. The psychological appearance of a consistent work environment contributes to project stability. One respondent, an experienced project manager, was micro-sourcing a project with administrative approval. She used the PTP model by proxy – she made overseas contacts via two individuals known to each other, one US based and the other in India (the primary contact in India), who subsequently gave the work to a trusted third party developer in India. Payment was to be made when the primary contact in India decided the work was sufficiently complete, with the stipulation the code would be “tweaked” by the provider if necessary after client review.

The respondent indicated the initial comfort level with the work arrangement was high (8.5 to 9 on a scale of 1-10) with communication via e-mail being fairly consistent. The provider suddenly ceased all contact and neither the US nor India based contacts was able to find him. The end result was no product was received nor payment made. She speculated that the developer had found another job. In this case the completely independent outsourcer had neither benefit of personal trust nor control over the remote work site to promote continuity and job completion.

The CEO of StaffOffshore indicated a major cost component came from maintaining a stable offshore work environment. He described clients who had tried to cut out the broker costs and ended up with reliability problems. The company made deliberate attempts to meet the psychological need for stability. This included having company outings to build camaraderie, emphasizing an open collaborative environment within project groups, strict adherence to local labor laws, written contracts and requesting employees give 30 days notice. The emphasis was on a “fixed” work environment : “We provide an environment they become attached to.”

### Types of Work and Methods Being Used

Due to the secretive nature of most covert micro-sourcing arrangements, the majority of this information came from the brokered and overt micro-sourcing participants. The types of IT projects being outsourced tended to focus on programming and included Web design, database programming, marketing research, PHP, MySQL and .NET development. The CEO of StaffOffshore noted that clients tend to use database projects as their initial entry project for micro-sourcing: “. . . what we usually encounter is we’ll see a company that has a few positions to fill remotely and then it seems they tend to almost offer up the database. . . it seems they feel that would be the easiest to do remotely so that’s what they try first.” He said clients were reluctant to offer up Web design and speculated that there was a concern about a cultural gap in dealing with abstract artistic components.

Open and closed source software is used both to manage and produce the products of micro-sourcing. StaffOffshore currently has more clients using closed source software, but the CEO has seen an increased trend toward the use of open source software both in numbers and in comments made by clients: “I’m definitely seeing a trend – to open source. Over the past few months I’ve encountered it more and more. They like being able to see source code and fix problems in the future. They like the security of not relying on one person.”

Project management and production software has included VMWare, I-Outliner (a task management system) and Bugzilla in addition to e-mail and chat software. StaffOffshore has been using the combination of I-Outliner and VmWare to create a common space for client and employee collaboration. When asked if agile methods were being used in micro-sourcing, the general response was negative. However, one respondent described a short-timeframe

project that involved rapid, reiterative cycles with client feedback on each cycle. The project included offshore programmers who worked directly on the code together in close physical proximity or “hand-in-hand.” Perhaps some microsourcing practitioners are implicitly using XP methodology or variants thereof. A respondent to the online survey indicated the use of virtual desktops enabled working with developers on “real-time” changes to a project. Further investigation of the practicality for using agile methods for small microsourced projects is suggested, particularly since the agile emphasis on small teams seems to fit the scale of microsourced projects.

### Security and Intellectual Property Protection

Whether covert or overt, microsourcing can be risky both in terms of product quality and intellectual property protection. Under the broker with offsite supervision model that was investigated, specific steps have been taken to maintain security and client confidentiality. Shift managers oversee basic worksite security in addition to the use of biometric logins for each workstation. Basic workplace procedures were described as:

Teams can collaborate within themselves but not with people outside their cubicle. That's so we don't have clients' sensitive information being interchanged between staff members. All that is made clear in the training for the staff members—and they're strictly forbidden from discussing their workload with someone outside their team. ... In theory if a client's employee wanted to spy on another client's employees they could do so very easily. However, that's why we keep all our clients confidential. That way no client can know his competitor has an office there (at our offices).

The shift managers also monitor interactions between clients and employees. The microsourcing company keeps records of these interactions. As can be seen from these examples, security monitoring is an additional cost factor for the brokered microsourcing model. Presumably mutual trust is the major safeguard under the PTP model; however, this may be impossible to observe in any number of cases.

### Risk and Trust—Microsourced Employees

A couple of respondents indicated trust and risk are also important from the viewpoint of the microsourced employee. The use of informal verbal contracts, and the sometimes secretive nature of microsourcing gives the appearance that the brunt of risk is held by the microsourcer; however, several respondents indicated concern that offshore workers might be exploited in these arrangements: “From an ethical perspective there is a need for a framework for interactions.” The manager involved with company sanctioned microsourcing noted that employees who are managing subcontractors are in a position to arbitrarily break off the agreement when there is an informal contract, for example if the job is under \$1,000, and they are operating with a verbal agreement: “The employee could fail to pay him even if he does 70 percent of the work.” He also stated that the company keeps nondisclosure and work agreements separate. The subcontractor might not get legal protection to ensure payment, but he is prevented from disclosing the nature of the work. It is important to realize that the danger of the client dropping out of the agreement is as real as the worker dropping a job. One respondent remarked that in certain parts of the world contracts with the U.S. are held in “special esteem.” He added that sometimes “offshore workers are reluctant to say they worked as long as they actually did” for various reasons and that western clients might take advantage of offshore workers.

### Contracts

Reliability and a way to settle disputes are as much a concern for microsourcing as it is for mainstream outsourcing. Psychological contracts at the individual level are cited as a significant factor in outsourcing success, particularly since written contracts are usually inadequate to convey absolutely every aspect of a working relationship [Koh et al. 2004]. Respondents for this study indicated that the PTP model tends to rely on trust and verbal contracts. In some cases there were some written contracts, mainly to specify payment terms for the employee, and their enforceability is questionable. The formalized broker model provided more information on microsourcing contracts.

StaffOffshore requires all of their suppliers in the Philippines to be registered in the United States so that any contract disputes fall under the jurisdiction of U.S. courts: “If I'm going to sign on a different supplier, what is important for me is that arguments with the client can be settled in U.S. courts.” This decision was made to avoid potential problems due to political instability in the Philippines. StaffOffshore is acting essentially as a broker and they sign a contract with the supplier in the Philippines. Some issues covered in the contracts include providing a replacement in the event the original employee is unable to complete the task, as well as providing specifications on deliverables. The CEO indicated the latter reiterated the issue of understanding the project specifications and communicating those specifications:

With projects, because you have a set price, it's important to hammer out with the client as many details of what they're going to need beforehand and then go through all the details that are specific

to that project to ensure that we're all on the same page at the outset—this is what you're getting. If you're getting more than you need it will cost more, it's imperative to set that out at the beginning as many details as possible.

One respondent made an interesting comment on the fact that having an employee working in a local office only provides the "illusion of control" — "The guy next to you can be more trouble than a remote worker."

A fundamental ethical question posed by microsourcing is whether or not this practice is considered "cheating." The purpose of this study was not to take an ethical stand; however, discussions when this paper was first presented as a work in progress indicated this perception existed in the audience. Considering the transcontinental/transcultural nature of microsourcing, it is difficult to even determine which set of cultural values would serve as the basis for such judgments. In some parts of the world, the fact that the client receives the agreed-upon product at the agreed-upon time and price, is the only concern. Whether the client is actually getting the work done in the way they think it is being done may be irrelevant. When asked if he thought microsourcing was cheating, one respondent replied that he was "proud of it bringing better quality to clients." Another respondent suggested microsourcing fell under the previously discussed classification of re-branding.

### III. ANALYSIS OF DATA AND THEORETICAL FRAMEWORK

Table 1 summarizes data from respondents with respect to the proposed framework for microsourcing that was given in Figure 1. The theoretical groupings are intended as a guideline for examining microsourcing practices within a theoretical context as part of the case study methodology [Yin 1994]. Respondent items may have conceptual overlap or be applicable to more than one theoretical category (See Table 1).

**Table 1. Summary of Data Collection Compared to Entrepreneurial and Proposed New Business Model Theory**

<b>Theoretical Models</b>	<b>Attributes</b>	<b>New Business Work Model: Summary of examples taken from data collection</b>
<b>Entrepreneurial Script Development Based on Structuration Theory</b>		<b>Overt &amp; Covert Microsourcing</b>
<b>Scripts</b> - repeatable actions to facilitate quick actions in particular settings) [Chiasson and Saunders 2005]	Scripts may be exact replicas of standard business practices or evolve to meet unique needs of Microsourcing	
<b>Legitimate</b> (acknowledged by entrepreneur)	Considered morally & practically acceptable to participants in business setting	<ol style="list-style-type: none"> <li>1. Not considered "cheating" —psychological contracts exist between participants</li> <li>2. Leveraging trust—giving remote workers access through company firewall</li> <li>3. Levels of trust between physicians outsourcing radiology consults</li> <li>4. Use of verbal contracts between participants</li> <li>5. Need an interaction framework that defines ethical behavior for microsourcers and microsourcees</li> <li>6. Suppliers are registered in U.S. for purposes of legal jurisdiction for contracts (StaffOffshore)</li> </ol>
<b>Meaningful &amp; Competent</b> (accepted by entrepreneur)	Allows user to act quickly within particular business setting to achieve legitimate, powerful & compete results—reinforces cognitive processes that enable entrepreneurial action	<ol style="list-style-type: none"> <li>1. Emphasis placed on the need for microsourcing clients to have project management skills</li> <li>2. Observation that clients attempting to circumnavigate using microsourcing brokertended to have reliability problems</li> <li>3. Maintaining security for intellectual property</li> </ol>



<p><b>Powerful</b> (shaped by entrepreneur for specific advantage)</p>	<p>Provides user with domination over social &amp; material resources—allows user to get things done</p>	<ol style="list-style-type: none"> <li>1. Overwhelmed local worker increased personal productivity through using Microsourcing</li> <li>2. Local employee overtly requests ability to microsource part of his work in order to meet deadline – becomes local manager for the offshore employee.</li> <li>3. “Re-branding” examples : (a) A company allows employees to sub contract their work (b) The software provider for marketing agencies</li> <li>4. Marketing Media Buyer—keeps an extra offshore employee available for on-call client emergencies</li> <li>5. Need for strong project management skills (StaffOffshore)</li> <li>6. Description of work practices that emulate “agile” programming methods</li> </ol>
<p><b>Entrepreneurial Model</b> Interpretation &amp; Modification of Processes</p>		<p><b>Overt &amp; Covert Microsourcing</b></p>
<p><b>Embedding</b>—entrepreneur becomes part of the local structure [Jack and Anderson, 2002]</p>	<p>(Social) —developing social networks and reenacting those structures</p>	<ol style="list-style-type: none"> <li>1. The PTP model—workers who didn't have a personal contact overseas forwarded their work to a domestic colleague who did and created covert offshore subsidiary             <ol style="list-style-type: none"> <li>a) The attempt to use the PTP model by proxy</li> </ol> </li> <li>2. Brokered Microsourcing including:             <ol style="list-style-type: none"> <li>a) Going to the Philippines to hire and develop ties with local management support staff (StaffOffshore)</li> <li>b) Providing stable physical work infrastructure—persistence of the work environment—including company activities to foster camaraderie— (<i>persistence of work environment</i>) for remote workers (StaffOffshore)</li> </ol> </li> </ol>
<p><b>Effectuation</b>—take a set of means as a given and focus on selecting between possible effects that can be created with those means. [Sarasvathy 2001]</p>	<p>Tools used are widely available and have been in place in traditional business processes.</p>	<p>Respondents indicated tools used included: Internet, VOIP, traditional telephone, fax, Web cameras, desktop sharing, e-mail instant messaging. Other software products used included: VMWare, I-Outliner</p>
<p><b>New Business Model—Microsourcing</b></p>		<p><b>Overt &amp; Covert Microsourcing</b></p>
	<p>Personal level outsourcing derived from development of behavioral scripts and reinterpretation of existing outsourcing processes.</p>	<ol style="list-style-type: none"> <li>1. Individual workers create and maintain their own microsourcing arrangements through personal contacts</li> <li>2. Entrepreneurs recognize the market potential for personal level outsourcing—emergence of formal brokers/providers to facilitate microsourcing arrangements and provide microsourcing services.</li> </ol>

The theoretical constructs also do not occur in isolation. For example, social bonds formed from embedding may complement the activities being performed within scripts [Jack and Anderson 2002] and relationships between types



of scripts, (competence, legitimacy, and power) may be intertwined and vary by situation [Chiasson and Saunders 2005].

#### IV. CONTRIBUTIONS, LIMITATIONS, AND GROUNDWORK FOR FUTURE STUDY

This paper introduced a variation on outsourcing that has not yet been covered in the IS outsourcing literature. Until now, not much consideration has been given to the idea that workers can appropriate the same social processes and technologies used by corporate outsourcing initiatives for their own use. In order to understand the potential advantages and threats posed by microsourcing, it is necessary to study and understand the basic types of microsourcing as well as methods used. To this end, Structuration Theory was proposed as a theoretical guideline for microsourcing case study analysis and as a guideline for further microsourcing discussion and study.

The theoretical groundwork proposed for microsourcing assumes that this is a new form of entrepreneurship. If the "legitimacy" of scripts used in covert microsourcing are indeed a significant source of competitive advantage, it may be difficult to validate the proposed framework due to its frequently secretive nature. This probably contributed to the small number of respondents to the online survey. The potential strength derived from secrecy may also serve as a deterrent in gathering statistically significant amounts of data to explore questions of microsourcing effectiveness and diffusion among participants.

Microsourcing raises interesting questions about the potential diffusion of loyalty and responsibility resulting from the use of subcontractors. Some respondents indicated they had been hired by individuals who were themselves subcontractors. Are temporary, contract workers more likely to engage in covert microsourcing than regular employees? Although this would probably be impossible to measure, it raises interesting questions on potential impacts of using subcontractors, particularly with regard to theory involving script legitimacy.

While microsourcing appears to be in its nascent state, the recent appearance of microsourcing brokers potentially indicates a future trend. Although the current focus of this study is on individual-level arrangements, there is nothing to prevent this method from being used as part of a corporate strategy. The importance of project management skills for microsourcers suggests there would be a future demand for project managers, should microsourcing ever become more popular and widespread.

The proposed theoretical framework can be used to frame discussion and study of microsourcing as an evolving form of entrepreneurship as well as a new form of dynamic work methods and relationships. The increase in other types of outsourcing acceptance ranging from standardized back office processes to medical tourism, suggests microsourcing has the potential to become a sanctioned outsourcing option. Increases in traditional outsourcing may have the net effect of legitimizing variations the practice in the eyes of individuals seeking to personally replicate the advantages from outsourcing being realized at the corporate level. Microsourcing has the potential to give a corporation access to a larger worker talent pool as well as the ability to defer some management activities to in-house employees. Microsourcing can threaten intellectual property if it occurs covertly. As long as the practice continues to exist, it will be a concern to primary employers. Future study should examine not only potential negative impacts, but also potential worker acceptance and advantages of microsourcing.

#### ACKNOWLEDGMENTS

The author would like to thank Professor Terry Ryan of Claremont Graduate University for his support of this research and Professor Robert Judge of San Diego State University for his critiques of the preliminary drafts.

#### REFERENCES

*Editor's Note:* The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web, can gain direct access to these linked references. Readers are warned, however, that:

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