

DISTRIBUTED WORK:

COMMUNICATION IN AN “OFFICELESS FIRM”

Yi Lai and Brendan Burchell

Faculty of Social and Political Sciences, University of Cambridge

Biographical Notes

Yi Lai is a PhD student in the Faculty of Social and Political Sciences at the University of Cambridge. This project was undertaken as part of her MPhil degree.

Brendan Burchell is a Senior Lecturer in the Faculty of Social and Political Sciences at the University of Cambridge. His research interests include job insecurity, work intensification and the quality of working life.

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Abstract

New technologies permit new types of organisations. This article describes and analyses one such organisation, an “officeless firm”, where all employees work from their own homes and there is no central office. Drawing upon observations and interviews, the modes of communication and the nature of the interpersonal relationships that have permitted this organisation to succeed are described, along with the challenges that face this organisation in the future as it attempts to grow.

INTRODUCTION AND BACKGROUND

New information and communication technologies have enabled new organisational forms to flourish. This paper is a case-study of one particular type of organisation: a small firm without a central office, where each employee works from their own home. We examine the types of communication used by this company, the advantages that have accrued, and the challenges inherent in this form of organisation. To understand this case study we draw upon the work organisation literature, and in particular the concepts of 1. distributed work and 2. virtual teams.

DISTRIBUTED WORK

The widespread and intensive utilisation of Information and Communication Technologies (ICTs) is one of the prominent characteristics of distributed work. The defining characteristic of a distributed work team is that it incorporates members who are based at locations remote from one another and typically make heavy use of ICTs such as e-mail, telephone and an intranet to facilitate communication and collaboration (Cramton, 2002, Lipnake and Stamps, 2000).

Distributed work can take a number of forms, including:

- . Not having a permanent work location on company premises
- . Teams being formed with members located at two or more workplaces, possibly even in different countries
- . Working at sites intentionally located to be nearer the employees' homes,
- . Work at least part of the time at home (Bélanger and Collins, 1998).

According to Citera (1998), physical proximity plays an important role in collaboration and coordination of work teams. As the physical distance between team members grows, their contact may be less frequent and the cost of interacting may increase (Kraut *et al* 1990). Physical separation along with geographic distance place increased demands on an organisation's communication system (Citera, 1998).

VIRTUAL TEAMS

The second, related literature concerns virtual teams. Virtual teams are described as groups of geographically, organisationally or temporally dispersed workers brought together by information and telecommunication technologies to accomplish one or more organisational tasks (Alavi and Yoo, 1997; DeSanctis and Poole, 1997; Jarvenpaa and Leidner, 1999). Drawing from the various existing definitions of virtual teams, they share common features such as the preponderant reliance on ICTs to communicate with each other; the flexible composition; and the ability to traverse traditional organisational boundaries and time constraints (Powell *et al* 2004). According to Bélanger and Collins (1998), a virtual team is one form of distributed work, and the two terms are interchangeable under many circumstances.

In order to take advantage of "team virtuality" (Kirkman and Mathieu, 2007) in a distributed environment, companies need to exploit the potential of communication and information technologies (Anderson *et al* 2007).

A central concern for distributed team members is the efficiency and efficacy of distant communication. Team coordination or team behaviours are usually considered to be conducted more effectively in face-to-face environments than in distributed environments. Team members working from separate locations who communicate via telephone, email, or instant messenger exchange less information during a given period of time than their face-to-face counterparts because ICTs are less conducive to

conveying information such as facial expressions or body gestures which are more easily noticed in face-to-face interactions (Stone and Posey, 2008). However, communication media such as email is argued to be a lean method in its written format but not in its content which could also indicate power cues (Panteli, 2002) or function as a “communication buffer”.

The various advantages and disadvantages of ICTs and face-to-face communication are well discussed by researchers and literature, however, the emphasis of this paper is not the exclusion one for the other but how they are, in practice, combined in order to facilitate distributed teamwork. The design of ‘media ecologies’ (Nardi and Whittaker 2002) is a comprehensive proposal for the balancing of communication devices. Media ecologies refer to the process by which a particular mix of media is used depending on the nature of the work and contextual aspects of the workplace. Media ecologies are “information ecologies”—local habitations of people, practices, technologies and values (Nardi and O’Day 1999).

Lipnack and Stamps (1997) observed virtual teamwork in IBM, Sun Microsystems and Motorola and concluded that the success and failure of distributed teams was primarily contingent upon trust. Trust functions like the glue that holds and links distributed team members together (Kanawattanachai and Yoo, 2002) when they cannot monitor or control one another. However, trust “needs touch” (Handy, 1995). With limited opportunities to “touch” members, trust could become fragile and temporary (Jarvernpaa and Leidner, 1999).

The aim of this case study of Puma Consulting¹ is to investigate distributed work and the communication processes through which distributed team members work together, learn from one another and create shared understandings and relationships which are essential to their activities.

This paper starts with a description of the company we refer to as “Puma Consulting”¹, and the research methods employed in this novel case study. Next, the main methods of communication amongst employees are described, and evaluated. In section 3 the particular advantages and the ways in which trust and identity have been developed are described. Section 4 discusses some of the challenges facing the company and disadvantages of the officeless firm, in particular the challenges of

¹ The name of the company and all employees has been changed to protect anonymity.

isolation and expansion.

THE DISTRIBUTED TEAM AND THE PUMA CASE-STUDY

Puma Consulting is a software consulting company consisting of four members. During the fieldwork it was in a period of transition, having recently recruited a fourth member of staff to compliment the three founding employees, who had the status of company directors. ‘Bill’ was the management director, ‘Peter’ technical director and ‘Michael’, the development director. David joined them in July 2004 to promote marketing. The company does not possess a central office, mainly because of the cost of acquiring and maintaining commercial office-space; all four work from their homes. The work involved team collaboration combining ICTs such as emails, intranet, telephone (including the voice-over-internet service, Skype; note research was conducted before Skype became widely used), fax and face-to-face meetings to communicate. The three founding members had known one another (but not well) before they started the company in 2001, as they had all been employed by the same previous employer. Their work for Puma involved both team collaboration and individual work.

It is not possible to assess accurately the prevalence of this organisational form that we refer to as an “officeless firm”. A small number of other firms with a similar structure of employees each working from home has been identified after extensive searches, for instance Bellwether Enterprises (www.bellwether.co.uk). So, although not unique, this organisational form seems to be rare in the UK, but likely to become more common as ICT technology becomes ubiquitous.

METHODOLOGY: THE CASE STUDY

The main field work was undertaken over a three month period in the spring of 2005. Contact has been maintained, and the company has continued to thrive in the same form up until the most recent contact in November 2006. Access to the company was established through Bill. Our proposal to study the company was put to the other employees at a meeting, and was unanimously agreed.

Studying an officeless organization raised interesting methodological challenges

and required innovative research methods. Organisational ethnographers typically spend time on the premises of companies that they study to observe the customs and practices of the organization and can opportunistically observe formal and informal interactions between employees (Neyland; 2007). The study of puma provided no such opportunities for such observation, and so had to rely on more explicitly negotiated access to individuals in their own home-based offices and their meetings. In addition to this, interaction between members was investigated by asking them to keep diaries of their communications.

During the research three of their lunchtime face-to-face meetings were observed at Bill and Peter's houses. Each meeting lasted for 2 to 3 hours depending on the agenda and members' schedule afterwards. Interviews with Bill and Peter were conducted at their respective homes after the meetings and both interviews lasted for one hour and forty five minutes. Michael's one-hour interview was carried out on university premises. The longest interview was with David: it was arranged at one of his offices and it lasted more than 2 hours. Observation of Bill's home office in the attic of his house was made after interviewing him: Bill placed one PC and one laptop in the attic and there were programming related books and computer games in his book case. There were piles of documentation on his desk and attic floor. He told us that "as soon as I pull the ladder up and shut the hatch, I'm completely by myself".

In-depth semi-structured interviews were conducted with all four members concerning their insights and feelings towards their work. An interview with one of Puma's most important clients was also carried out in order to validate the views expressed in the interviews with Puma workers. Each member of Puma was also asked to choose a typical working day and complete a diary detailing their work hours and methods of communication. The diaries complemented and provided cross-validation for observations and interview data.

FINDINGS

COMMUNICATION: USE OF ICTs

Because Puma members spend most of their working time physically separated from one another, they placed high demands on the use of ICT. With the consensus that

communication can be a central concern for distributed teams (Citera, 1998), analysis of their various modes of communication is a central focus of this research. Telephone was considered as “too commonplace” (Peter) and “nothing special worth mentioning” (Bill) so the following discussion does not include telephone usage among Puma members.

E-MAIL

Puma members reported that they were generally satisfied with the daily use of ICTs and reported that e-mail was the most prevalent method of communication. Aside from its convenience, the reasons for this preference were simple. On the one hand, all members except David had strong technological backgrounds so that they were familiar with this mode of communication; also, most of their clients were used to e-mail. Thus, e-mail became the most common and efficient means of communication adopted by Puma members.

As Walsh and Bayma (1996) state, e-mail is fast, cheap and allows easy transformation of short messages and long documents, all of which make collaboration with distant colleagues more feasible. E-mail increases distributed members’ contact with one another and access to the information, helping to make collaborations more efficient and effective (Walsh and Maloney 2002). In the case of Puma, members used e-mails and other devices for daily business and personal contact. Without the feasibility of observing their daily communication, the working diaries highlighted their communication methods over the course of a single working day (Tables 1 and 2).

Name and Date	E-mails	Phone Calls	Face-to-face Meetings
Bill, 17/05/05	7	2	2
David, 11/05/05	23	7	4
Peter, 12/05/05	9	4	2
Michael, 17/05/05	13	2	1

Table 1: Communication methods of Puma members in a day(source: Puma members’ working diaries).

	With Puma Members	With Clients/Customers	Friends	Family	Others
Bill	3	1	3	0	0
David	9	3	2	2	7
Peter	2	0	3	0	4
Michael	6	4	3	0	0

Table 2: Number of e-mails sent in a day (source: Puma members' working diaries)

When asked to give comments on the usage of e-mails during the interview, Bill stated that:

“using e-mail is very convenient when I need to get some technical support from my colleagues. It is easy to attach the whole document and it is fast. ... It also helps to save huge phone bills especially when we need to contact clients abroad”. (*Bill*)

However, as Bill noted, e-mail was not perfect for Puma members: “*You can't put emotional content in [an e-mail] very easily*”. Interestingly, a commonly cited disadvantage of e-mail – the non-instant response was in contrast regarded by Michael as an advantage, for example he considered email as a “communication buffer” and said that when he was busy and had to concentrate on his work,

“I can queue them [e-mails] up and I can deal with them in the morning or the evening, or even leave them to the next day and quickly check them, if they're not urgent” (*Michael*).

Contrary to the criticism that emails may cause misunderstanding among distributed members (Armstrong and Cole 2002), Puma members did not appear to have experienced this problem. When confronting the ambiguity or confusion, Bill said he would phone up or even meet people face-to-face to clarify any unclear points. Nevertheless, this was only occurred on rare occasions.

According to Daft and Lengel's (1984) media richness theory, face-to-face communication is the richest medium and follows the telephone, impersonal written documents and numerical documents are the leanest. E-mail as a written and asynchronous form of communication does not meet the requirements for a rich medium. However, even lean media can be “rich” in many senses. Among Puma

members, it was not the medium itself but the way in which members use the medium that was deemed the most relevant predictor of their performance. Puma members regarded e-mail as the most convenient and helpful form of communication to deal with daily business contacts, access support for programme documentation, and to keep in touch with friends. They took full advantage of e-mail and thus made it a lean 'rich' method in accordance with the communication richness theory (Ngwenyama and Lee 1997).

'IDEA BASKET'- THE INTRANET

Telephone, instant messenger and intranet are also used by Puma members. Intranets - company web sites designed for internal use, are an important technological innovation that can assist management and communication within distributed workforces. (Hollingshead *et al* 2002). The introduction of intranets in terms of locating, storing and retrieving the data, information and knowledge that distributed workers need for their individual and collective work solves key problems for distributed teams (DeSanctis and Monge 1999).

According to Hollingshead *et al* (2002), intranets play an increasing part in individual and organisational activities, such as reading company news, using internal search engines and hyperlinks, accessing individual and group data, information and knowledge sharing and group interaction. During the participant observation, Bill demonstrated the *Wiki* system that they had adopted as Puma's intranet. Puma members could edit the webpages on their intranet themselves. If there were suggestions, comments or information, members could put them on a Wiki page. Bill described the 'Idea Basket' - a critical section of the intranet, and stated that it was very useful. This was a collection or list of members' ideas. When a team member came up with new ideas, they were able to type them into this 'basket', and when there was a chance or when they had sufficient time, they could discuss the validity and feasibility of these ideas and suggestions. Puma members logged on to their "basket" from time to time to save some 'unexpected inspirations' or make notes of interesting ideas. The intranet webpages also contained a clients' information list in which old and new customers' names and contact details were all located in case they needed to be contacted quickly from any location.

In the case of Puma, the process of members generating ideas to the basket enabled them to store and share knowledge. There are two theories of knowledge sharing that are of particular significance: the theory of transactive memory (TM) (Hollingshead 1998; Moreland 1999; Wegner 1987) and the public goods theory of collective action (Fulk *et al* 1996; Samuelson 1954). TM focuses on “the optimal level of knowledge distribution within a group and the conditions under which the group may be expected to achieve this state”. The public good theory of collective action emphasizes “the process by which individuals can be induced to engage in knowledge sharing in order to achieve a collective outcome—in this case, a transactive memory system” (Hollingshead *et al* 2002: 336–337).

A prerequisite for an effectively functioning TM system is the willingness of people who hold the knowledge to make it accessible to the others. Knowledge is somewhat different from information and data in this setting because it requires the motivation and active participation of the knowledge holder for the transfer to occur. Puma members took advantage of the intranet and used it as a stage to transfer and exchange their knowledge. Members were keen to contribute their ideas to achieve their common goals. Therefore, the ‘wiki’ TM system was developed, which in turn provided members with new ideas and knowledge. Members could learn from one another and the process of exchanging and discussing their knowledge acted as a crucial step in establishing working and personal relationships.

Given the small and ‘closed’ membership of Puma, ‘free riding’ (Hardin 1968; Olson 1965; Sweeney 1973), where individuals enjoy the benefits of a collective resource without contributing to its establishment or maintenance was less likely to occur (Olson 1965). As a result, the experience of mutual sharing ideas through the ideas basket in Puma was seen as successful, enabling members to learn from each other and build their relationships throughout this sharing of ideas.

FACE-TO-FACE COMMUNICATION: LUNCHTIME MEETINGS

Puma members held lunchtime meetings every one or two weeks for informal face-to-face communication. They combined the opportunity for direct discussion with

the sharing of a social setting, which resulted in the efficient collaboration over the task and the fostering of good mutual understanding and high-trust relationships. Meetings were rotated between members' homes. In comparison to other distributed workers, Puma members' meetings were easier to carry out due to the small travel distance; all four members were located within easy cycling distance of each other in Cambridge, UK, a small and compact city.

During the first participant observation, it became clear that Bill was in charge of the 'to-do' list and the agenda of work. Before meetings, Bill would prepare the list and printed e-mails and materials regarding the operation of the company. The meetings would begin with the presentation of each member's project progress. They highlighted the problems and difficulties involved in projects and the other members provided feedback in terms of ideas and suggestions for the project under discussion. The presenter would not necessarily agree with other's opinions but they were noted and often stated that they would consider feedback they received. Bill took minutes of interesting ideas and suggestions. They also discussed individuals that they needed to meet and how they could gain access to new projects and clients. The discussions did not consist solely of matters relating to business and work; they also exchanged personal experiences, leisure activities, anecdotes, gardening tips, etc. with one another.

In comparison to ICT-mediated communications, the frequency of communication was higher, the amount of informal contact was greater and the opportunity for the exchange of information and knowledge increased. Face-to-face meetings conveyed more cues including body language, voice, information and instant feedback. In accordance with the media richness theory (Daft and Lengel 1984), these meetings could be regarded as the richest communication medium among Puma members.

A two-hour business meeting might be regarded as boring, stressful and not conducive to trust formation if it consists solely of business-related discussions. But meetings over lunch created a casual atmosphere. As Kiesler and Cummings (2002) note, eating and drinking together are seen as the most fundamental way in which people come to feel connected. The extra topics apart from work and business helped people to come to know each other outside of the work environment. The meeting was informative from a research perspective, enabling the collection of background

information about members and their work. For example, I quickly formed an understanding of the general structure of Puma: Bill was in charge of the administration and they could work independently, that is, one person working alone on a task, or they cooperated on shared tasks. Despite their equal formal status in the organization, Bill was more active and better organised than the others.

In order to triangulate the observations from the face-to-face communications, Puma members were asked for their personal feelings and comments on their face-to-face interaction. Although all members regarded meetings as necessary, helpful and important, their perspectives on the various issue differed from one to another. Michael made some insightful comments on the meetings' functions: "*[meetings] keep everyone on track, boost morale of the team, generate ideas and have fun*". He reported that he took advantage of these meetings to express himself "*in a more secure way*". He was cautious concerning e-mails when confidentiality and legal issues were involved. Bill was satisfied with the flexibility and freedom of meetings. David also appeared to be satisfied with the format of the meetings, but commented that he thought the meetings should be more formal, disciplined and efficient.

To summarise, the face-to-face meetings were an important component of Puma members' communication. They created a harmonious atmosphere in which members could discuss their work, exchange information and knowledge, but also seek support and share feelings and experiences with one another. This contributed to the establishment of a clear understanding amongst the members laying the foundation for trust and strong social bonds to be developed, supporting claims that face-to-face communication in distributed work are valuable (e.g. Kiesler and Cummings 2002; Nandi and Whittaker 2002) . However, Barker's (1968) argument that the geographical and physical dispersion constrain distributed members from shared social settings is not applicable to this case study.. On the other hand, although the necessity and importance of the face-to-face meetings was confirmed, these casual encounters were not always, as Nandi and Whittaker (2002) assert, able to increase the convenience of and satisfaction with communication. During the fieldwork period some meetings were cancelled if there was not any important business, so meetings were typically fortnightly rather than weekly. However, more recently some large contracts had increased their need for face-to-face communication, so meetings which occurred on a

more regular weekly basis were shortened slightly, and became more tightly organized.

Strengths of Puma's achievements.

In analysing the positive aspects of Puma's current system of interpersonal relationships, the advantages of these will be discussed under three headings: trust, common social identities and diversity.

TRUST

Collective trust can be defined as a shared psychological state in a team that is characterised by an acceptance of vulnerability based on expectations of intentions or behaviours of others within the team (Rousseau, 1998). Trust and trustworthiness are regarded as important for collaboration, particularly in distributed teams where they create conditions that are critically enabling (Jarvenpaa and Leidner 1999). Research demonstrates that trust can increase confidence and security in relationships and promote open and influential information exchange (Earley 1986), as well as reduce transaction costs, negotiation cost and conflict (Zaheer *et al* 1998). Teams with insufficient trust are likely to encounter difficulties in generating and sustaining good performances. In a recent review of the literature, Giusta (2008) has argued that trust involves two at least two very different dimensions, rational and emotional. The rational aspect of trust helps to achieve good economic outcomes between actors, but beyond this people value trust and trustworthiness as sources of utility and satisfaction in their own right.

In Puma, three of the members (namely Bill, Michael and Peter) had previously worked in the same company before founding Puma Consulting. They had a long history of working together and so had developed a close personal understanding of one another.. Michael stated: “...*we trust each other just [because of] knowing them for a long time, working with them for a long time*”. As a relatively new member, David was not trusted to the same extent. For instance as Peter expressed: “*I do trust David but I don't trust him in the same depth as I trust Bill and Michael coz I don't know him as well.*” Similarly, Michael had the same feeling: “*David is taking a little while to be convinced. He's carefully being introduced into company gradually*”. However, as

David was seen as being hard-working and performing well, the other members gradually came to trust him: “[trust] does not happen automatically. It takes some time.”

From David’s perspective, he knew that being new to the group would entail a process of acceptance by the other:

“They go back a long time so they all had the time to build the trust and relationship with each other. I trust them, certainly. I think they are very trustworthy people...hopefully they will see that I’m not letting them down” (David).

Research illustrates that the role of ‘initial trust’ in distributed teams is paramount (DeRosa *et al* 2004). This was certainly the case in Puma, as the initial trust among Bill, Michael and Peter was the foundation of their relationships and successful collaboration. David’s situation in Puma reflected the suggestion that face-to-face interaction is vital for the development and maintenance of trust (Nohria and Eccles 1992). The other members had already experienced face-to-face communication when working together in their previous company. For David, without constant face-to-face interaction and the cues which are involved in the interaction, trust is “*at once both harder to attain and easier to lose*”, consistent with Lipnake and Stamps’ (2000: 70) conclusion that trust among distributed team members is a “need-to-have quality”

The level of trust among a distributed team also depends on team size. Olson (1965) asserts that as team size increases, free riding can increase because the visibility of each contributor decreases. It seems reasonable that the issue of trust is much easier to handle in a small team like Puma. Michael agreed that they shared a high level of trust when working together: “[trust] is quite possible for a company our size. I don't think if we were much larger we could work in the quite same way”. If a distributed team possesses a large number of members, the relationships tend to become more complicated and the trust will be more difficult to attain.

Compared with co-located teams, trust in distributed teams can be more difficult to identify or develop, yet more critical because the distributed context often renders other forms of social control and psychologically safety less effective or feasible (Jarvenpaa

and Leidner 1999). Mediated communication such as telephone and e-mail cannot play the same role as traditional face-to-face communication in the building of collective trust because they eliminate cues about interpersonal affections such as warmth and attentiveness.

The case study of Puma shows that, even if team members were separated and only had limited opportunities to spend time together, trust could still be built. On the one hand, long-term working relationships were a necessary feature. People who had known one another over time were able to gain a greater understanding of each other and thereby enhancing their levels of trust. On the other hand in the case of the new member, David, their distributed pattern of working made his initial integration into the organization more difficult.

The literature's emphasis on salience of trust among distributed team members has been paralleled by attention to the importance of their relationships. Zorn (1995) highlights geographical dispersion of employees as contributing to the difficulty in forming personal relationships within the workplace. Similar to theories and research concerned with trust amongst distributed teams, the issue of relationships tends to be contrasted between face-to-face environments and distributed settings.

Team members working in a dispersed environment may have a higher likelihood of feeling disconnected and less committed to the organisation than their co-located counterparts, because they perceive that it is harder to form strong connections to their colleagues and more widely to the team (Whiting and Reardon 1998). Nevertheless, the development of good relationships amongst distributed team members is, as Puma demonstrates, feasible. But, as Giusta (2008) argues, this level of trust goes beyond creating an efficient working environment, it is also a source of satisfaction and pride to the members of Puma. The following sections examine how distributed team members built relationships in the absence of frequent and direct interactions and instant feedback.

COMMON SOCIAL IDENTITY

A common social identity benefits group process and performance by increasing

team members' knowledge of one another's skills, perspectives, and interpersonal styles (Harrison *et al* 1998; Wittenbaum and Stasser 1996). It also enables teams to focus upon a common set of goals and values (Jehn and Mannix 2001; Jehn *et al* 1999).

Bill, Michael and Peter had worked in the same company many years before they founded Puma Consulting. From the experience of working together for a long period, they had developed comprehensive knowledge of one another's capabilities, skills, perspectives and even personalities; They shared a common social identity. Gruenfeld and colleagues (1996) conclude that teams composed of individuals with pre-existing relationship ties are more comfortable in arriving at solutions to complex problems compared to a group of strangers who lack a shared sense of identity.

The pre-existing relationships of Puma members were crucial in founding Puma and in successfully conducting the business. Before they founded Puma, they were all disappointed with their previous company's inefficient management. They shared common perceptions at that time: dissatisfaction with the company, confident of their working experience and skills, and the idea of running their own business. These shared perspectives were the initial motivations for founding Puma. As the founders of Puma, they also shared the same goal - making Puma a successful business. When at work, they were confident with one another's expertise and skills. For example, Michael and Peter were more specialised in writing software code, whilst Bill's expertise extended to the domains of management and administration. They were also comfortable with each others' personalities, agreeing that Bill was a well organised and self-disciplined person, which therefore allowed Michael and Peter to trusted Bill with financial issues.

As Bill contends, "So they [Peter and Michael] are my technical backup. We plan the job and then, it will depend whose skills are appropriate for the job and who's free, whatever".

DIVERSITY

Although Bill, Michael and Peter shared much in common and knew each other well, they were also different in many aspects. As Bill explained:

"But we are also very different people. We are not...I don't think either of them has got any interest in juggling [Bill's interest]. Peter has a set of his own friends which I don't really know.

Michael has a set of his own friends which I don't really know. But we get on very well. We think very alike now. We know each other's reactions and...so well now...but I think when we work together, we don't have any problems. ...right, here is a company, there are three of us; everything is split three ways" (*Bill*).

Puma members were not demographically diverse. They were of the same sex, race, similar ages, and educational background so they were spared culture gaps or language difficulties which may obstruct team performance. As a result, they reported relatively smooth communication among one other: they could understand each other well most of the times. Only David had occasional difficulties when technical issues was involved. On the other hand, informational diversity prevailed among Puma members. Informational diversity includes attributes such as work experience, education, and functional background that influence how an individual perceives and approaches problems (Mannix, Griffith and Neale, 2002). Many theorists argue that knowledge or skill diversity can increase group performance by enhancing the group's creative problem-solving ability (Nemeth, 1986). Puma members' diversity in expertise gave them specific responsibilities which might eliminate "role conflict" and enable more effective cooperation.

When Bill was asked about the reason they had a new member, he explained:

"...selling and marketing something is a skill as well. Although I can do a little bit, I know I'm not very good. David has worked for lots of companies ... and all kinds of different things. For a good salesman, it doesn't matter what he's selling. He just has those skills. He's a very personal chap. He talks very clearly. He's the guy who looks good in a suit. We realise we need someone to help us with that aspect of the business. Because I've realised I'm not very good at it. I hate wearing a suit" (*Bill*).

This combination of skill diversity and cultural homogeneity may be an important factor in the success of Puma.

Challenges of distributed work for Puma

As well as the advantages of distributed work for Puma that have been considered so far, this particular organisational structure also gives rise to some challenges that Puma has had to face. These will be considered under three headings: isolation, motivation, and expansion.

REDUCING ISOLATION

As the spatial and temporal distance between team members increases, it is possible that communication becomes more challenging. The lack of physical interaction results in reduced verbal, social and status cues which are typically present in face-to-face communication (Kiesler *et al* 1984). One possible impact on distributed workers is feelings of isolation and loneliness. Although new technologies offer distributed members a variety of devices to communicate with one another, it is unclear whether these technologies serve as a substitute for face-to-face interaction (DeRosa *et al* 2004). Did Puma members working from home by themselves, experience isolation?

Michael did not feel that loneliness or isolation were problems. At the times when he needed help but there was no one around, he felt unassisted. However, he was not bothered by this difficulty, as he notes

“When I’m working, I’m really focused on what I’m doing. So I don’t want distractions. Basically, I enjoy the solitude. If I have a problem I’m coming up with, I can always ask someone for help so that’s not a problem either” (*Michael*).

At times Bill felt isolated especially when he was working at home by himself. On working days, when neighbours went to work and children went to school, he noticed that it could be very quiet around the house: *“I can feel a bit isolated, bored, and alone but it’s not insurmountable, it’s not something that really gets to me. Because I have other things I can go out and do.”*

David and Peter also perceived that they were at times isolated. Generally, they reported that these experiences of isolation did not last for long and did not have serious consequences for their wellbeing as the members were able to turn to various alternatives such as their non-work interests or friends who can offer help or company. Hence, Raghuram and Wiesenfeld’s (2004) argument that distributed workers are less likely to receive social support seems not to be such a problem in the case of Puma. Puma members had wide ranging non-work interests - Bill took his juggling and circus skills seriously; Peter played the keyboard in a band; Michael was a gardener from time to time and David enjoyed fitness training. All members felt strongly that their work and real life should be balanced and paid attention to their leisure time activities which were pivotal for them in order cope with the negative impacts arising from feelings of

isolation.

Motivation

Another potential disadvantage of working separately at home might be a lack of motivation. Sometimes isolated workers have reported that they feel unable to maintain their productivity. However, Puma members appeared to be able to successfully deal with this with their own solutions.

Peter had been confronted with a lack of motivation from time to time. His solution was instilling more personal discipline - to force himself keep on working. Bill had observed that Peter was not 'in the working mood' sometimes. He needed self-discipline but he knew that

"when you are doing something like programming which can be quite a creative activity, you can't force it. And it's very important with somebody's things to let yourself have this time to do other things. I play computer games sometimes. Or I play my guitar or juggle" (*Bill*).

Michael was a 'very technical person' as all three other members mentioned in the interviews. As a result, he was engrossed in his work such as programming and writing code. He enjoyed doing this so much that his work interests were the strongest motivation. David was the only member who reported that he never had any problem with motivation: "*If I had more days, I would do more things.*"

EXPANSION – WHAT DOES THE FUTURE HOLD FOR PUMA?

Puma's recent experience of expanding from a workforce from three to four by recruiting David had highlighted a problem with the organisational form of the officeless firm, in integrating a new employee into the workforce. Because the three founding members were colleagues previous to the foundation of Puma, their working relationships already existed when they formed this distributed team.

Some of the problems of incorporating a fourth member into a long-standing team of three would be a difficult transition in any context, co-located or distributed. For instance, the team of three was aware of problems in arriving at a consensus over decisions, and there was some apprehension that their *modus operandi* would be more problematic with a fourth member:

“I think David coming in is a very interesting one because suddenly it’s not just three people, suddenly it’s four. Now with three people, we can always have a decision, because it’s always two against one or we all agree or whatever. With four people there can be counts, there can be different counts. ...I think it will take some time before we know, but it will change things. At the moment, it’s... [He is drawing a picture to show their relationships on the paper] (see the illustration in appendix2) previous that was us three, now it’s...then it was us three and this other chap here, and now it’s a funny shape thing, it’s sort of... but it’s still 3 of us, the 3 is still...there are still 3 leaders but with another one”(Bill).

Adding a new member to Puma also had implications for the ownership of the company. Before David’s arrival, the shares had been split equally between the three founders. How this would be modified with the addition of new members was not clear.

Developing a new relationship with David also presented them with an additional set of challenges due to their “officeless firm” structure. Chidambaram (1996) found that teams supported by ICTs need more time to develop close relationships but are able to exchange social information over an extended period of time, and this was experienced in Puma. David, as a new member, did not have as many opportunities as co-located team members to ‘get together’ with the others and it slowed the development of their relationships. The literature on communication emphasizes that face-to-face interactions are particularly important in the early stages of a new relationship. In traditional organisations new recruits would typically learn about their new organisation from sitting in an office, and assimilating tacit knowledge through observing others and chance conversations. For instance, through such observation and casual meetings, one would learn about the norms and informal networks of the organisation, appropriate levels of formality, punctuality, deference, dress codes and sense of humour. Without any “shared space” to act as an arena for such observation and interaction, it is not clear how new recruits could be socialized into Puma.

However, as David describes in the quote below, fortuitous opportunities for face-to-face interactions did help to build the relationships more quickly.

“We [Bill and I] are a little bit of double-act. Bill will do the ‘technical guy’ and I’ll play the more general ‘business guy’. And we’ve been to London on a few occasions and we’ve done exhibitions together... When you travel together on the train, when you spend the day together,

when you have lunch together, you get to know each other a lot better. Michael and I flew up to Newcastle together and spent a day together, talking to people up there. So I had the opportunity to spend the whole day with Michael and work closely with him. I also had to work with him one-to-one develop the menu for B [a new software package under development in Puma] so I've been over to his house, just two of us and we worked on that" (*David*).

Bill's independent observations confirmed David's account of the value of this face-to-face contact in David's successful integration into the organization. ICTs can sustain reciprocal, companionable and supportive relationships but require more time to develop. David's apparently 'sluggish' (according to Bill) process of integration could be attributed to the distributed work arrangement. Studies such as that conducted by

The changing relationships in Puma exhibited a picture of Bill, Michael and Peter performing as a subgroup, being closer to one another and getting on better as well. This was seemingly due to their long shared history, but this did not seem to lead to the isolation of David. They treated David as 'one of them' for the time being with the expectation that the relationship would continue to develop over time. "*He joins us because he cares about the company but not just the money*", said Bill.

After the main fieldwork was completed, the possibility of growth had become an issue again. Due to Puma's success in securing significant orders for its larger products, the recruitment of several new programmers has been discussed. There was a feeling that taking on, say, three new employees would be difficult to achieve as an officeless firm, so perhaps Puma's success will eventually lead to a transition back to a more conventional organisation with a central office. It may not be size per se that is the limiting factor for officeless firms, but rather the difficulty of organic growth within this structure.

Conclusions

The case study of Puma Consulting has provided enlightening perspectives on the distributed work setting and the methods of distributed team members' communication. This paper shows that communication modes such as traditional face-to-face communication and the commonly adopted mediated communication (i.e. use of ICTs) are essential in understanding the interaction between team members in the distributed

work setting. The research also highlights how issues such as trust amongst distributed team members are important for the formation of viable distributed work arrangements.

The implications of co-location—face-to-face communication, close proximity, a higher level of informal social interaction and instant feedback—is commonly considered the ‘gold standard’ of work environments (Clark and Brennan 1990; Kiesler *et al* 1984; Rutter 1987; Short *et al* 1976). However this case-study has demonstrated that the combination of less frequent face-to-face meetings and the adoption of ICTs can provide workable modes of communication.

The findings from this single case study approach are not necessarily generalisable to situations and settings experienced in other officeless firms. Nevertheless the distinctive characteristics of the company highlighted by this research are interesting in their own right. Puma initially adopted a distributed work arrangement due to financial constraints; at the company’s inception the members could not afford to rent or purchase an office from which to conduct their business. However, over the space of four years, the company was successful and Puma members had not only coped with but become proud of their distributed work arrangement.

One of the most significant benefits from distributed work and for the members was the flexibility and freedom from the work environment. Distributed work was regarded as a lifestyle choice amongst Puma members that provided independence. They believed that it contributed to happier work and personal lives and also more positive attitudes towards their business and the future. In discussing the reasons for their success, Bill stated: “*Happy people work better*”.

Although the distributed work arrangement helped Puma members perform more efficiently as a team, other factors such as the nature of the business they were engaged in and members’ distinct abilities and personalities may also have facilitated their success. As a software company, a distributed work setting was an optimal choice for them. They did not have any of the centralized training, manufacturing or warehousing requirements that would have prevented firms in other industrial sectors from adopting this organisational form. And they were fortunate that they all had homes that were large enough to give them space for an office; many employees, particularly at the start

of their careers, would not be able to afford that space.

But there was also a sense among Puma members that if their company was going to expand, they would probably have to relinquish their current work arrangements. More employees would precipitate the need for a formal company structure, and thus maintaining a distributed team work would be difficult to manage. No matter how much they enjoyed the lifestyle provided by distributed work, they thought the future tendency would be a move to a central office. As directors, they hoped that they would not necessarily be required to be constantly in the office, but inevitably their work and lifestyles would change.

Appendix 1

Working Diary

Date:

Please complete the two tables at the end of the day which you regard as a ***typical working day***

Working Hours Today (Please record your working hours and durations today approximately)

In The Morning		In The Afternoon		At Night	
Hours of work		Hours of work		Hours of work	
From		From		From	
To		To		To	

Communication Ways and People Communicate With (Please record the ***numbers*** of each communication way to different people)

	Emails	Phone Calls	Face To Face Meetings (Including Social Activities)
With Lemur Members			
With Clients/Customers			
Other Friends			
Families			
Others			
Total Numbers			

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