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Abstract

Teleworking, a flexible work arrangement, has gained momentum for some categories of knowledge workers. Adopting a knowledge-based perspective, this paper argues that teleworking affects knowledge creation and transfer, major sources of competitive advantage. More specifically, despatialization – consequential to teleworking – modifies elements of the employment relationship that have been presented as necessary conditions for transferring and creating knowledge. This paper contributes to unraveling the managerial challenges of teleworking and proposes a conceptualization of despatialization.

Key words

Telework ; knowledge creation ; despatialization ; knowledge transfer

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I) Introduction

Knowledge creation and transfer, whereas major sources of competitive advantage in our knowledge-based society, appear fragile processes that organizational- and technology-driven changes like the implementation of teleworking may endanger. At the beginning of the 21st century, we still have a lot to learn about how firms should be managed for creation and exploitation of knowledge, in a context of flexible work(ing).

Considered as a growing and global phenomenon (Felstead and Jewson, 1999; Kirkman et al., 2002), teleworking is emblematic of new flexible forms of work organization. Teleworking represents an alternative work arrangement facilitated by information and communication technologies that allows the employee to work physically outside the conventional workplace by bringing work to the worker (Nilles, 1994; Feldman and Gainey, 1997; Fairweather, 1999). Even if teleworking covers various practices and social forms, from home-based work to part-time commuting between multiple sites, mobile work, satellite offices, small office, home office, and so on, it always implies “the decoupling of work activity from one material work place such as “the office” (...) as well as from prescribed working hours, work schedules, scripts and practices” (Tietze, 2002, 385).

Nowadays, teleworkers are mainly knowledge workers¹ (ECaTT, 2000; Chronopost/Ipsos, 2003) and knowledge intensity is one of the variables used to characterize teleworking (Daniels, Lamond and Standen, 2001). While telework seems inappropriate for some people, tasks and organizations, it appears suitable for jobs that require the interpretation, communication, and manipulation of information (Fairweather, 1999; Taskin and Vendramin, 2004; Peters, Tijdens and Wetzels, 2004; Lamond, Daniels and Standen, 2005). Thus, in many respects, telework affects primarily knowledge intensive firms.

According to the knowledge-based view of the firm, the capability to exploit existing knowledge and to create new knowledge is what gives a firm a sustainable competitive advantage (Nonaka, 1991, 1994; Spender, 1996; Grant 1996 a&b; Nahapiet and Ghoshal, 1998; Nonaka, Toyama and Nagata, 2000). The knowledge-based view, an outgrowth of the resource-based view, presents

¹ Daniels, Lamond and Standen (2001) argue the literature often distinguishes ‘professional, managerial or technical’ jobs from ‘clerical or manufacturing’ jobs. The former are more knowledge intensive; they are characterized by outputs which are not easily measured; they can involve greater autonomy over the scheduling and process of work; they are complex and require greater concentration, less supervision, more on-the-job learning, more complex interactions with clients or colleagues and longer term goals (Ramsower, 1985; Olson, 1987).

knowledge as the most strategically important resource because of its value and the difficulty for competitors to imitate it (Grant, 1996 a&b). Indeed, knowledge is often protected against imitation by isolating mechanisms such as causal ambiguity, firm specificity, interconnectedness, social embeddedness. Furthermore, the same characteristics make knowledge difficult or costly to trade short of buying the firm itself or one or more of its subunits (Nonaka, Toyama and Nagata, 2000). In short, the knowledge-based approach views the firm as “a social community specializing in the speed and efficiency in the creation and transfer of knowledge” (Kogut and Zander, 1996: 503).

Based on the belief that knowledge is the main source of competitive advantage of the knowledge intensive firms, this paper investigates the potential impact of teleworking on the transfer of teleworkers’ personal knowledge and on the creation of organizational knowledge on the basis of teleworkers’ knowledge. This paper argues that teleworking could have deleterious effect on organizational knowledge.

This potential negative impact of teleworking on firms’ long term performance has never been mentioned by the literature. Teleworking has been lauded as a strategy to help organizations decrease costs and increase productivity (Baruch and Nicholson, 1997; Hill et al., 1998; Jackson and van der Wielen, 1998; Mitel, 1998), respond to employees’ needs for a healthy work-family balance (Chapman et al., 1995; Mokhtarian, Bagley and Salomon, 1998), reduce air pollution and traffic congestion (Salomon and Salomon, 1984; Heinonen and Weber, 1998), and so on. Based on these images and perceived as a ‘solution’ that makes work employer- and employee-friendlier, teleworking has become partly a myth (Lindorff, 2000; Taskin, 2003). For some researchers, however, the main stake of teleworking for organizations is the despatialization phenomenon, i.e. (càd) the remoteness of teleworkers, including both physical distance and psychosociological dimensions affected by the physical distance (Taskin and Vendramin, 2004). Despatialization modifies components of the employment relationship, of which personal identity or perceived organizational support, and may thus damage interpersonal relationships and lower organizational commitment. Yet, interpersonal relationships and organizational commitment constitutes one of the most important conditions for knowledge transfer and creation (Szulanski, 1996; Nahaphiet and Ghoshal, 1998; Nonaka, 1991, 1994; Nonaka, Toyama and Nagata, 2000).

This paper begins with a discussion of the conditions for knowledge creation and transfer presented in major knowledge-based papers, namely Szulanski (1996), Nahaphiet and Ghoshal (1998), Nonaka (1991, 1994), and Nonaka, Toyama and Nagata (2000). In all these

contributions, interpersonal relationships and organizational commitment appear to be fundamental conditions for knowledge transfer and creation. The paper continues with an introduction to teleworking as a mode of flexible work that affects some components of employment relationship, which are antecedents of organizational commitment and interpersonal relationships. Then, the paper summarizes the arguments in an integrative framework. The paper closes with a discussion of the contributions, limits, and avenues for future research.

II) Knowledge transfer and organizational knowledge creation

According to the knowledge-based view of the firm, the capability to exploit existing knowledge and to create new knowledge is what gives a firm a sustainable competitive advantage (Nonaka, 1991, 1994; Spender, 1996; Grant 1996 a&b; Nahapiet and Ghoshal, 1998; Nonaka, Toyama and Nagata, 2000). Knowledge-based researchers have presented several factors influencing the transfer of existing knowledge and the creation of new organizational knowledge. With regard to the transfer of personal knowledge, we turn to Szulanski's (1996) empirical results, while, with respect to organizational knowledge creation, we make use of Nahapiet and Ghoshal's (1998) and Nonaka's (1991, 1994) contributions. Building on this work, we point to the importance for knowledge transfer and creation of interpersonal relationships and organizational commitment, two elements that we will show to be transformed by the despatialization linked to teleworking.

Most knowledge-based researchers distinguish between two types of knowledge: explicit knowledge and tacit knowledge (Nonaka, 1991, 1994; Spender, 1996; Grant 1996 a&b; Nahapiet and Ghoshal, 1998; Nonaka, Toyama and Nagata, 2000). Nonaka, Toyama and Nagata (2000) explain that explicit knowledge is objective and rational and can be expressed as data, scientific formulas, specific actions and manuals, whereas tacit knowledge, such as beliefs, mental models, and crafts, is subjective, experimental, and hard to formalize. Thus, the critical difference between tacit and explicit knowledge lies in their transferability and the mechanisms for transfer across individuals, across space, and across time (Grant, 1996b). While explicit knowledge is revealed by its communication, tacit knowledge can be learned only through personal experience and is deeply rooted in action, commitment, and involvements in a specific context (Polanyi, 1962; Nonaka, 1994).

While some authors argue that knowledge resides exclusively in individuals (e.g. Grant, 1996b), we consider that knowledge can be held by an individual or collectively. In agreement with

Kogut and Zander (1992), Nonaka (1991, 1994), Spender (1996), Brown and Duguid (1998), and Nahapiet and Ghoshal (1998), we think that organizational knowledge is distinct from the aggregation of the knowledge of the individual organizational members. This paper focuses on personal and organizational knowledge, leaving out the group level.

In relation to these two dimensions, tacit-explicit and individual-collective, the resource- and knowledge-based views argues that tacit knowledge and organizational knowledge are more probable to be source of sustainable rents than explicit or individual knowledge because the former types of knowledge are less mobile and more difficult to imitate (Barney, 1986; Dierickx and Cool, 1989; Reed and DeFillippi, 1990; Kogut and Zander, 1992; Grant, 1996b).

Knowledge transfer

Knowledge that is difficult for competitors to imitate is often difficult to transfer within the firm. In his investigation of the transfer of best practices inside the firm, Szulanski (1996) identifies as major barriers to internal knowledge transfer the recipient's lack of absorptive capacity, causal ambiguity, and an arduous relationship between the source and the recipient. The recipient's lack of absorptive capacity is largely a function of the recipient's preexisting stock of related knowledge (Cohen and Levinthal, 1990; Szulanski, 1996). Causal ambiguity, a characteristic of the transferred knowledge, can result from tacitness (Reed and DeFillippi, 1990; King and Zeithaml's, 2001). Not believing that tacitness is unidimensional, Zander and Kogut (1995) propose to measure the degree to which knowledge can be easily communicated and understood using the constructs codifiability, teachability, complexity, and system dependence. They find that the degree to which knowledge is codifiable and teachable influences the speed of its internal transfer. Finally, knowledge transfer often requires numerous individual exchanges and an intimate overall relationship between the source and the recipient (Szulanski, 1996). In other words, an arduous (i.e. laborious and distant) relationship between the source and the recipient, a characteristic of the context in which the transfer takes place, may endanger the success of knowledge transfer. Szulanski (1996) captures the nature of the relationship between the source and the recipient with questions related to the communication and collaboration between the source and the recipient.

Knowledge creation

Besides the transfer of existing individual knowledge, the creation of organizational knowledge is another major source of competitive advantage (Kogut and Zander, 1992; Nonaka, 1991, 1994;

Spender, 1996; Nonaka, Toyama and Nagata, 2000). Nahapiet and Ghoshal (1998) propose that organizational knowledge, like all new resources, is created through two generic processes: combination and exchange. They argue that exchange is a prerequisite for resource combination, and thus knowledge creation, when knowledge and experience are held by different parties. To explain the creation of organizational knowledge, Nahapiet and Ghoshal (1998) turn to the social capital theory. They consider how three dimensions of social capital, structural (network ties, network configuration, and appropriable organization), cognitive (shared codes and language and shared narratives), and relational (trust, norms, obligations and expectations, and identification), affect the conditions necessary for exchange and combination to occur. With respect to the relational dimension of social capital, the authors argue that trust, norms, social identification, and obligations and expectations affect three necessary conditions for exchange and combination, namely (1) the access to parties for combination or exchange, (2) the parties' anticipation that such combination or exchange will create value, and (3) the parties' motivation to engage in knowledge creation.

Nonaka (1991, 1994) proposes a theory of organizational knowledge creation built around dynamic interactions between explicit knowledge and tacit knowledge. Nonaka (1991, 1994) proposes that an individual's personal knowledge is transformed into organizational knowledge through four basic patterns. More specifically, he argues that knowledge is created through a spiral of four modes of knowledge conversion between tacit and explicit knowledge: (1) socialization (from tacit to tacit knowledge), (2) externalization (from tacit to explicit knowledge), (3) combination (from explicit to explicit knowledge), and (4) internalization (from explicit to tacit knowledge). To create organizational knowledge, all four modes of knowledge conversion must be organizationally managed to form a continual cycle (Nonaka, 1994). Nonaka (1991) thinks that externalization and internalization are the critical steps in this spiral of knowledge because both require organizational commitment, the employee's sense of identity with the firm and its mission. Nonaka, Toyama and Nagata (2000) propose that the factors affecting knowledge conversion efficiency are: knowledge vision, organizational form, incentive system, corporate culture and organizational routines, and leadership.

With the nature of the overall relationship between the source and the recipient (Szulanski, 1996), the relational dimension of social capital (Nahapiet and Ghoshal, 1998), and incentive systems and corporate culture (Nonaka, Toyama and Nagata, 2000), all the authors present interpersonal relationships and organizational commitment as factors fundamental to knowledge transfer and creation. More specifically, van Krogh (1998: 136) argues that "[e]ffective

knowledge creation puts particular demands on the way people relate to each other in a company. Untrustworthy behavior, constant competition, imbalances in giving and receiving information, and a ‘that’s not my job’ attitude endanger effective sharing of tacit knowledge”. In fact, when interpersonal relationships are characterized by distrust, no empathy, little or no access to help, authoritative judgment, and cowardice, the individual will try to capture her knowledge rather than share it voluntarily with other organizational members (van Krogh, 1998). In these conditions, only extrinsic incentives could motivate the individual to share her knowledge (van Krogh, 1998). However, introducing monetary incentives in relation to tacit knowledge is likely to be unsuccessful (Osterloh and Frey, 2000). First, an individual who is extrinsically motivated could resort to free-riding and cannot be identified and sanctioned if she holds back her tacit knowledge (Osterloh and Frey, 2000). Second, while it is possible to transact explicit knowledge, it is more difficult, if not impossible, to transact tacit knowledge (van Krogh, 1998). Besides affecting the transfer of tacit knowledge, ‘bad’ interpersonal relationships and low organizational commitment will also affect the creation of organizational knowledge. Indeed, there cannot be an effective creation of organizational knowledge without voluntary sharing, i.e. exchange, of tacit knowledge between members of the organization.

To sum up, interpersonal relationships characterized by trust and organizational commitment are necessary conditions for the transfer of tacit knowledge and the creation of organizational knowledge. We will now show that teleworking, through despatialization, may damage interpersonal relationships and lower organizational commitment.

III) Teleworking and employment relationship

Teleworking must nowadays be considered as a flexible way to organize work and no longer only as a technological innovation. It covers various practices and social forms, from home-based work to part-time commuting between multiple sites, mobile work, satellite offices, small office, home office, and so on. Teleworking represents an alternative work arrangement facilitated by information and communication technologies that allows the employee to work physically outside the conventional workplace, and, therefore, brings work to the worker (Nilles, 1994; Feldman and Gainey, 1997; Fairweather, 1999).

As more companies and employees are involved in teleworking, Allen, Renn and Griffeth (2003) underline the critical need for theoretical frameworks to help researchers and managers to understand the effects of this relatively new work arrangement on individual job’s perceptions,

working relations, and work outcomes. While the literature counts only a few empirical studies focusing on teleworker's outcomes (Feldman and Gainey, 1997; Daniels, Lamond and Standen, 2001; Bailey and Kurland, 2002), Hill et al. (1998) point to the contradictory results of those researches regarding e.g. satisfaction and work-family balance. In fact, the underlying mechanisms by which teleworking affects attitudinal and behavioural outcomes have long remained unexplored (Bailey and Kurland, 2002). To address this gap in the literature, Allen, Renn and Griffeth (2003) investigate how teleworking may influence the teleworker's work environment and outcomes through its effects on the social system of the teleworker, on autonomy and self-management opportunities and requirements, and on role boundaries, particularly in terms of work and non-work interface.

We believe that despatialization, i.e. the remoteness of teleworkers, is the main challenge of teleworking for managers. Because of despatialization there is a risk that teleworkers become unconcerned with their job, less committed to the organization, and that relationships between teleworkers and co-workers deteriorate. To show these potential impacts of despatialization, we first conceptualize the despatialization modes that are associated with telework practice. Then, making use of Allen et al.'s framework, we investigate how remote working impacts two components of the employment relationship: (1) social identity, social support and perceived organizational support, and (2) work-family role conflict.

Despatialization modes

Teleworking involves remoteness and IT use, but there can be different kinds of remoteness: bank employees who telework from home one day per week do not experience the same despatialization that IT consultants, who share their time between clients premises, satellite offices, home and transportation. Both groups telework but experience remoteness in very different ways. In other words, the despatialization mode of each group is different and refers to a specific employment relationship². We propose to expand the conceptualization of despatialization along four design dimensions: (a) Teleworking location. Teleworkers often work from home (home-based), from alternate work sites (telecenter is now used to indistinctly describe satellite offices and neighbourhood work centers), from variety of locations, such as clients premises or perhaps while travelling (mobile). They may alternate and combine those different locations; (b) Teleworking frequency. The amount of time spent teleworking may range from as little as a less than one day per week (occasional), more than one day per week

² Note that by linking despatialization and employment relationship, which supposes the presence of colleagues and supervisors, this discussion focuses on paid work.

(alternate), to full time spent teleworking (permanent). Measuring the amount of time an individual teleworks relative to her total amount of work time would enable more detailed analyses of the effects of working away from the office (Allen, Renn and Griffeth, 2003); (c) Autonomy, trust and monitoring. Feldman and Gaine (1997) suggest flexibility of scheduling as an important characteristic to depict teleworking arrangements. In fact, flexibility of scheduling, autonomy, trust and control are related: teleworkers with greater scheduling flexibility seem likely to experience more control and autonomy, and may also perceive that they are better able to balance work and family demands. In his analysis of the relationship between trust and performance, Langfred (2004) links monitoring and autonomy and proposes three scales to measure individual autonomy, trust, and monitoring. Individual autonomy deals with flexibility of scheduling and with the way to do work; trust is related to other team members; and monitoring integrates peer control. In the case of teleworking, since IT is proved to allow close monitoring (Fairweather, 1999), monitoring should include, besides the peer control dimension, other management control dimensions such as administrative, financial, and time control, and goals setting. Thus, measuring autonomy, trust and monitoring appears critical if we try to consider the interaction of teleworking on the employment relationship; (d) Formalization of teleworking arrangement. Telework remains a tacit agreement in almost 80% of cases, this means that companies lack formal policies regulating teleworking arrangements (Walrave and De Bie, 2005; Farrah and Dagen, 1993). Teleworking arrangement remains informal and individualized (Taskin and Vendramin, 2004). Yet, formal policies may mitigate ambiguity or uncertainty about role expectations, or even reduce perceived flexibility or autonomy (Allen, Renn and Griffeth, 2003). When considering despatialization modes, we also need to take into account other contextual and personal variables – e.g. company size, corporate culture, knowledge intensity, training, degree of union representation, number of children, etc.– that could constitute boundary conditions or moderators.

These four dimensions contribute to defining a specific despatialization mode, which will impact the employment relationship distinctively. We now turn to two components of the employment relationship to illustrate the impact of each constitutive dimension of despatialization modes on the employment relationship and to show how despatialization affects organizational commitment and interpersonal relationships.

Social identity, social support, and perceived organizational support

A common concern about teleworking is that it may make teleworkers feel isolated from the workplace and may damage social contacts at work, idea that the concept of despatialization

captures well. As suggested by psychological contract theorists, remote workers might feel less inclusion in the workplace, where inclusion is defined as the degree to which the individual is physically and psychologically integrated into the organization. Lack of inclusion can affect employee commitment (Rousseau, 1989). The despatialization phenomenon modifies employees' relationships and social context in several ways (Belanger, 1999; Taskin and Delobbe, 2002; Deffayet, 2002). Allen, Renn and Griffeth (2003: 136) note that "one is through the extent to which the individual identifies with the organization. Another is through changes in perceptions of social support the individual receives from supervisors, co-workers and the organization".

The assertion of social identity theory is that individuals identify who they are through the groups to which they belong (Saks and Ashforth, 1997; Hogg and Terry, 2000). As the degree of separation between a teleworker and her company increases, the teleworker has less exposure to organizational values, meanings and standards. Allen et al. (2003) propose therefore that a greater percentage of teleworking time, especially from home, may be associated with less commitment to the organization as a result of a loss of identification with the organization. Despatialization also acts as a barrier to interactions and to a rich communication, and, thus, reduces the amount of perceived organizational support from peers and hierarchy. Perceived organizational support focuses on the exchange dimension of the employment relationship. As such, when employees perceive high levels of support, they feel obligated to reciprocate with commitment to their organization and by engaging in behaviours that support organizational goals (Wayne, Shore and Liden, 1997, cited in Allen et al., 2003).

Drawing inspiration from Allen, Renn and Griffeth (2003), we link the despatialization modes to the employment relationship by proposing that (i) teleworking frequency is negatively related to identification with the organization; (ii) teleworking frequency, teleworking from remote places, close monitoring and limited level of trust and autonomy are negatively related to perceptions of supervisor and co-worker support; (iii) formalization of teleworking arrangement are positively related to perceptions of supervisor support; (iv) autonomy and high trust combined with a certain level of monitoring (Langfred, 2004) are positively related to the perceived organizational support; (v) close monitoring is negatively related to the perceived organizational support.

Work-family role conflict

The despatialization phenomenon helps the distinction between work and private life to fade away (Raghuram et al., 2000; Schots and Taskin, 2005). Since time becomes more flexible and unbounded, since teleworking arrangement is informal and personalized, and since monitoring is no more time-based but result-oriented, teleworking interferes with private life, especially in the case of home-based teleworking (Tietze, 2002, Madsen, 2003). Jackson and Schuler's (1985) results illustrate that the perception of conflict between work and family roles is negatively related to organizational commitment. However, teleworking may appear as family friendly when considered as a flexible way to carry out work duties in accordance with private demands. Researches show that this positive combination between telework and family roles requires high teleworker's autonomy (Taskin and Delobbe, 2002; Parasuraman and Simmers, 2001). Again, we link despatialization modes to the employment relationship proposing that (vi) frequency, remote teleworking locations, and close or abusive monitoring (Tepper, 2000) are positively related to perceived role conflict; and (vii) autonomy in planning tasks and trust are negatively related to perceived role conflict.

IV) Integrative framework

On the basis of the teleworking literature and the framework proposed by Allen et al. (2003), we highlight close interactions between despatialization modes, two components of the employment relationship (social identity, social support, and perceived organizational support, and work-family role conflict), and relational outcomes (organizational commitment and interpersonal relationships). The knowledge-based view allows us to link this potential effect of teleworking on relational commitment and relationships to knowledge transfer and creation, the main source of competitive advantage for knowledge-intensive firms. Our arguments are summarized in Figure 1.

Insert Figure 1 here

Telework constitutes a great challenge for managers because despatialization threatens the relational dimension of the employment relationship. The potential deleterious impact of teleworking on the firm's competitive advantage, through knowledge creation and transfer, has to be accounted for at the time the firm decides to implement teleworking. Management –and especially human resource management– needs to develop supportive and inclusive policies in

order to reinforce perceived organizational support and social identity. If managers do not recognize this threat to the relational dimension of the employment relationship, the potential short-term gains from teleworking (i.e. higher work productivity and lower costs) could be undermined by insidious longer-term negative impacts on the firm's knowledge. In conclusion, the employment relationship has to be adapted to capture the synergy between individual and business goals giving rise to huge potential for continuous learning (Fletcher and Rapoport, 1996).

V) Discussion and conclusion

Knowledge creation and transfer, whereas major sources of competitive advantage in our knowledge-based society, appear fragile processes that technology-driven changes like the implementation of teleworking may endanger. A multidimensional conceptualization of despatialization allowed us to point out that teleworking, by modifying the relational dimension of the employment relationship, may damage knowledge creation and transfer, two major sources of competitive advantage. Teleworking, as a mode of flexible work, is a typical element of what is called the boundaryless organization and the boundaryless career (Baruch, 2000). This theoretical contribution highlights a great challenge for strategic management. It calls organizations to find new ways to manage the illusive workplace created by teleworking. It suggests that organizations should develop adapted organizational support mechanisms for teleworkers in order to avoid or limit the negative impact of teleworking on organizational commitment and interpersonal relationships. In this new organizational context, organizational support issues should have priority in remote management policies by promoting specific despatialization modes that fit with the organization context, business and employees' profiles. Many companies involved in teleworking have worked out incentives to maintain people attached to the organization, balancing performance monitoring and culture of trust. Incentives are typically tools that contribute to instrumentalizing job involvement. Our framework suggests that the relational dimension of the employment relationship is critical to the process of knowledge creation and transfer, even if incentives may contribute to increase perceived organizational support.

This contribution has some limits. First, this paper focuses on teleworkers who are knowledge workers and paid workers. Our arguments are not directly transferable to other categories of teleworkers. For instance, self-employed teleworkers are extrinsically motivated. The limited amount of variables taken into account to describe the employment relationship constitutes a

second limit that is peculiar to conceptual frameworks. The framework does not address all the ways in which despatialization impacts the employment relationship but focuses on dimensions related to knowledge creation and transfer. Finally, our arguments relative to knowledge creation build on theoretical frameworks proposed by knowledge-based researchers. Empirical work on knowledge creation is hampered by the difficulty to measure this phenomenon.

Future studies may focus on how to manage teleworking and related human resource management issues by exploring contextual, organizational and individual characteristics necessary for effective telework practice. In particular, considering despatialization modes in connection with HRM practices could lead to identify HRM practices suitable for specific kinds of telework.

Future research may also investigate how teleworking impacts knowledge transfer and creation through Nahapiet and Ghoshal's (1998) cognitive dimension of social capital (shared codes and language and shared narratives). While the sharing of a common stock of technical and organizational knowledge facilitates the transfer and exchange of knowledge among individuals (Cohen and Levinthal, 1990; Kogut and Zander, 1992; Grant, 1996b; Nahapiet and Ghoshal, 1998), teleworking may make more difficult the development of shared values permitting a shared language by which to communicate.

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Figure 1. Integrative framework

