Exploring different cultural configurations: how do they affect subsidiaries' knowledge sharing behaviors?

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Abstract

Purpose – *The purpose of this paper is to explore the impact of different cultural typologies (i.e. innovative, competitive, bureaucratic and community) on employees' knowledge-sharing processes within multinational corporations (MNCs) by taking a subsidiary perspective. It particularly applies the competing values framework to the study of individuals' orientations toward sharing knowledge with others while also investigating the influence of top management support on such orientations.*

Design/methodology/approach – *To test the proposed hypotheses, in this paper, survey data of 389 employees from six Italian subsidiaries are empirically analyzed by running hierarchical regressions on the two dimensions of knowledge-sharing processes, i.e. knowledge donating and knowledge collecting.*

Findings – *The results show that the four types of organizational culture differently affect the knowledge-sharing sub-processes and confirm the importance of a strong top management support to facilitate interpersonal relationships.*

Research limitations/implications – *Despite the cross-sectional nature of the data and the limitations arising from the subsidiaries' position in the country, the findings suggest managers to pay great attention to the positive side of bureaucracy by emphasizing the need for order and efficiency while, at the same time, providing employees with a constant and encouraging support toward knowledge-sharing activities.*

Originality/value – *The paper adds empirical evidence to the limited existing research on knowledge-sharing sub-processes of knowledge donating and collecting, extends the understanding of how different organizational cultures affect such processes, and contributes to the literature on MNCs' knowledge-based activities by adopting a subsidiary perspective.*

Keywords *Top management support, Knowledge sharing, Organizational culture, Subsidiaries, Multinational companies*

Paper type *Research paper*

1. Introduction

1.1 Background

When knowledge sharing is to be implemented and fostered, several challenges arise. Among them, organizational culture is a highly critical one. Prior research remarks that it is believed to be a significant input to effective knowledge management and organizational learning (Janz and Prasarnphanich, 2003; Kayworth and Leidner, 2003). This is consistent with the argument that knowledge-based processes are influenced by the social context in which they take place, making them closely connected with the different interpretations individuals develop around the social interactions (Alavi *et al.*, 2005). In particular, culture is likely to influence top-down knowledge-sharing activities (Bhagat *et al.*, 2002) as well as both the degree (Ford and Chan, 2003) and the content of knowledge-sharing processes (Kayworth and Leidner, 2003). Following this, organizational culture may exert a powerful influence on employees' knowledge-related behaviors, especially when it comes to investigate multinational corporations (MNCs) (Lucas, 2006).

"Knowledge exchange processes are central to firms' growth as their development is strongly contingent upon their ability to create and replicate knowledge."

Over the past decades, there has been an increasing interest among academicians in studying knowledge management in MNCs (Gupta and Govindarajan, 2000; Szulanski, 1996). The underlying reason is that they are seen as international networks that create, exchange and apply knowledge in multiple locations (Almeida *et al.*, 2002). This is consistent with an MNC's need to rapidly adapt to environmental uncertainty and to integrate the activities of its subsidiaries located worldwide.

1.2 Research gaps

Extant literature on knowledge management in MNCs is clearly dominated by studies on knowledge transfer among subsidiaries, between headquarter and subsidiaries and on home and foreign countries relationships (Adler, 1995). To date, only few contributions investigating subsidiaries' employees' behaviors in knowledge sharing exist (e.g. Hutchings and Michailova, 2004). As a result, this paper starts from the argument that to come up with a more established understanding on knowledge-sharing processes within MNCs, it is essential to first look at how they occur within the firms comprising an MNC's network. Thus, before examining whether the whole MNC successfully performs knowledge sharing, the extent to which it is pursued within the MNC's "units" and what matters for it to be successful should be investigated.

Moreover, in studying organizational culture, several prior researches (e.g. Deshpandé *et al.*, 1993; Hartnell *et al.*, 2011) apply the competing values framework (Competing Values Framework (CVF), Cameron and Quinn, 1999) which distinguishes between four types of organizational culture (i.e. innovative, competitive, bureaucratic and community). Despite the widespread literature empirically analyzing the influence of organizational culture on a broad array of different phenomena, an application of the CVF model to knowledge-sharing behaviors is still lacking; so, the role played by the different types of culture on knowledge-sharing processes remains unclear.

1.3 Purpose of the paper and methodology

According to the gaps identified in the literature, the aim of this paper is to answer the following research question: which relationship exists between different types of organizational culture and employees' knowledge-sharing behaviors?

In so doing, the contribution of this study is threefold. First, it attempts to increase the body of knowledge regarding the influence of organizational culture on individual behaviors within the organizations. Second, by distinguishing the knowledge-sharing process between two dimensions, namely, knowledge donating and knowledge collecting, it adds new theoretical and empirical evidence to extant literature regarding what matters for individuals to share knowledge with others. Third, it intends to enhance existing research about knowledge-based processes within MNCs by adopting a subsidiary perspective.

For this purpose, the authors empirically analyze survey data of 389 employees from six MNCs' subsidiaries located in Italy and found that the four types of organizational culture have different effects on their orientation toward sharing knowledge with others.

2. Theoretical background

2.1 The relevance of knowledge-sharing processes

2.1.1 Knowledge assets. The knowledge-based perspective states that the exploitation and management of knowledge assets are crucial to the organizations' survival and prosperity, as they are seen as key differentiators to firms' competitive advantage and resources that create value (Grant, 1996). Nevertheless, knowledge is not just "a flow of messages", rather it also includes know-how, experience and interpretations. Given this, knowledge assets are hard to trade, to codify and to imitate. This, on one side, makes them difficult to transfer, and on the other side, it makes them a highly valuable source of competitiveness. However, to be more beneficial, knowledge has to be disseminated across all firms' levels as its value increases when it is shared.

2.1.2 Knowledge-sharing processes. Knowledge sharing is the employees' act of making opinions, skills and know-how available to others within the organization (De Vries *et al.*, 2006; Lin, 2007; Van den Hooff *et al.*, 2012), providing mutual help to solve problems and develop ideas. It is gaining increasing attention from scholars because of its potential to turn individual knowledge into group and organizational knowledge (Suppiah and Sandhu, 2011).

Nevertheless, individuals are often reluctant to give away what they know because it may entail a loss of power; at the same time, knowledge can be shared only through "the active participation and cooperation of the knower" (Suppiah and Sandhu, 2011, p. 463). Based on this, it is essential for organizations to understand how to motivate their employees to contribute to knowledge sharing.

By definition, knowledge sharing involves a source and a recipient, that is, the supply and the demand for knowledge (Ardichvili *et al.*, 2003). Accordingly, this paper looks at two dimensions of knowledge sharing, i.e. knowledge donating and knowledge collecting (De Vries *et al.*, 2006; Van den Hooff and De Ridder, 2004; Van den Hooff and Van Weenen, 2004). While the former describes employees' voluntary process of communicating with others (i.e. the bringing side), the latter is about accessing knowledge on demand to learn from colleagues (i.e. the getting side). These two dimensions should be considered separate and independent from each other, as they usually have their own dynamics and are influenced by different factors (Van den Hooff and Hendrix, 2004).

2.1.3 Knowledge sharing and knowledge transfer. Given the complexity of this research topic and the related terminology used in the literature, it is important to distinguish between the terms knowledge transfer and knowledge sharing. While knowledge transfer describes the identical or partial replication of knowledge from one place to another (Lucas, 2006; Szulanski, 1996), knowledge sharing is more than transferring knowledge: it is about creating it through social interaction (Van den Hooff and Huysman, 2009).

Therefore, for the purpose of this paper, the authors are interested in studying knowledge-sharing processes, which they conceive as including knowledge transfer activities.

2.2 Knowledge sharing within MNCs

Knowledge exchange processes are central to firms' growth as their development is strongly contingent upon their ability to create and replicate knowledge. This is particularly

"The empirical analysis shows that larger firms tend to inhibit employees knowledge donating behaviours."

> **"An innovative, community, and bureaucratic culture positively affect knowledge donating, while knowledge collecting is positively associated only with a bureaucratic culture."**

relevant for MNCs, which continuously need to transfer their technology both within their subsidiaries and across national boundaries.

An MNC is "an economic organization that evolves from its national origins to spanning across borders" (Kogut and Zander, 1993, p. 625). Thanks to this process of international expansion, an MNC transfers its technology (i.e. its knowledge), improving its growth and extending its power. It thus competes on the market based on its information and know-how superiority, as well as its ability to develop and move knowledge from one place to another or from one entity to another. Kogut and Zander (1993) defined them as social communities that efficiently create and transform knowledge "into economically rewarded products and services", thereby pointing out that knowledge transfer capability is what distinguishes MNCs from domestic firms. In this regard, MNCs are similarly conceived of as networks of geographically dispersed but strongly connected units (Ghoshal and Bartlett, 1990) to whom they can transfer knowledge and know-how they do not yet possess, thus producing significant scale and scope economies across the network itself (Asmussen *et al.*, 2013).

Given the relevance of their knowledge transfer activities, as well as the important role played by cultural-, institutional- and physical distance factors, MNCs are constantly in search of the appropriate contexts in which to develop social capital and facilitate internal knowledge flows (Gooderham *et al.*, 2011).

2.2.1 Knowledge sharing within MNCs' subsidiaries. Making knowledge transfer feasible is critical to MNCs, especially because their knowledge is largely distributed across their subsidiaries (Gupta and Govindarajan, 2000). Indeed, subsidiaries tend to develop firm-specific knowledge, as they build it from different sources, such as the local environment, other subsidiaries and corporate headquarter (Asmussen *et al.*, 2013). The resulting heterogeneity leads them to differ among each other, within the MNC's network, in terms of quality and quantity of available knowledge and also their ability to internally share and exploit it.

Nevertheless, few studies have shed light on MNCs' subsidiaries' behaviors in knowledge sharing while focusing on employees' orientations. In this regard, this paper argues that, prior to any analysis of knowledge sharing among MNC's subsidiaries, among subsidiaries and corporates and among subsidiaries and host country's local firms, it is essential to look at how knowledge sharing occurs within the firms comprising an MNC's network. Thus, before examining whether the whole MNC successfully performs knowledge sharing, research should investigate the extent to which these processes are pursued within the MNC's "units".

By looking at MNCs' knowledge sharing as involving at least three levels of analysis (i.e. country, organizational and individual; Kostova, 1999), in this study, the authors chose to focus on the individual one to come up with empirical evidence that may contribute to the analysis at the other two levels.

2.3 Organizational culture: the competing values framework

2.3.1 Organizational culture. Organizational culture identifies a system of shared values, norms and hidden assumptions that define appropriate attitudes for organizational members (Cameron and Quinn, 1999; Denison, 1990; Miron *et al.*, 2004). It consists of

cognitive systems explaining how people think and make decisions (Pettigrew, 1979) and, more generally, the way things are done in the firm (Schein, 1990). Deshpandé and Webster (1989, p. 4) review defines organizational culture as "the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them with the norms for behavior in the organization".

Every organizational culture is firm-specific, resulting from a firm's experiences and history, and evolves over time by shaping the firm's identity. Building on social comparison theory, Hofstede (1991, p. 170) affirms "no part of our lives is exempt from culture's influence", in that the societal value systems shape our behaviors and our view of the world. Moreover, according to Schein (2004), culture is an abstraction, but still its consequences, in terms of behaviors and attitudes, are concrete. Hence, organizational behaviors are much more influenced by cultural factors than by directives ordered by the top management (Jarnagin and Slocum, 2007). Thus, effectively diagnosing organizational culture can help explain otherwise unexplained employees' behavioral patterns (Suppiah and Sandhu, 2011). In line with this argument, scholars have shown that organizational performance depends on how employees accept and share their firm's cultural values (Denison, 1990) and, similarly, that a strong culture is associated with organizational excellence (Ashforth, 1985).

2.3.2 The competing values framework for the study of organizational culture. So far, academicians have proposed various tools to understand and analyze organizational culture (Cameron and Quinn, 1999; Kets De Vries and Miller, 1986; Schein, 2004). For developing this paper, the authors ground on Quinn and his colleagues' competing values framework (CVF, Cameron and Quinn, 1999; Quinn and McGrath, 1985; Quinn and Rohrbaugh, 1983), which is the one that has been used most extensively in prior studies that empirically investigate organizational culture (Campbell and Freeman, 1991; Deshpandé *et al.*, 1993; Goodman *et al.*, 2001; Hartnell *et al.*, 2011; Lau and Ngo, 2004). The model identifies four different cultural types originating from two dimensions: on one side, whether the organizational emphasis is on organic processes (e.g. flexibility, discretion and spontaneity) rather than on mechanistic processes (e.g. planning, scheduling and stability); on the other side, whether the organization mainly focuses either on the internal work environment (e.g. integration and smoothing activities) or on positioning itself in the external one (e.g. competition and differentiation).

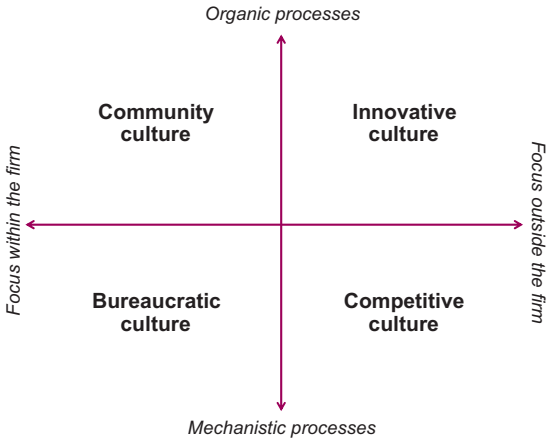
Based on this, the paper analyzes the dominant culture at the time of the survey according to four different typologies of organizational culture, namely, innovative, competitive, bureaucratic and community culture. The labels have been slightly changed with respect to the literature this study builds on. Deshpandé *et al.* (1993) and, earlier Campbell and Freeman (1991), called them adhocracy, market, hierarchical and clan culture, respectively (Figure 1).

2.3.3 Organizational culture in MNCs. Given MNCs' inherent cultural complexity, studying organizational culture is critical to these firms. As they operate internationally, MNCs must face the challenges of the global environment; moreover, within their boundaries, different kinds of cultures come into play (e.g. corporate's, subsidiary's, home-country's and host country's culture).

To ease knowledge transfer within the whole MNC, prior research stresses the importance of culture in creating shared identities (Kogut and Zander, 1993) and collaborative work environments (Eisenhardt and Santos, 2002). Hence, to reap the benefits of their

"A strong top management support is particularly critical to both knowledge donating and collecting behaviors."

Figure 1 Matrix of organizational culture typologies



Source: Deshpandé *et al*. (1993)

knowledge transfer advantage, MNCs try to find a common language as a way to collaborate worldwide with their subsidiaries.

In attempting to understand the role played by culture within MNCs, recent researches have explored the extent to which the internationalization of organizational values – conceptualized as a key component of organizational culture – affect knowledge-sharing behaviors within MNCs' units (Michailova and Minbaeva, 2012); others have developed a cultural analysis of organizational change within MNCs (Vaara and Tienari, 2011); others have then studied the influence of organizational culture on the dissemination of human resources practices within the MNC's network (Thite *et al.*, 2012).

This paper focuses on employees' perception of the corporate culture. Being the organizational culture made of different subcultures (Jermier *et al.*, 1991), the authors agree with Deshpandé *et al.* (1993) that, within MNCs, at a certain point in time, there is a dominating subculture over the others, that the subcultures are not mutually exclusive, and that the dominating subculture can change over time. This argument recalls Meyerson and Martin's (1987) differentiation perspective of organizational culture, which points to the existence of a mix of local cultures within the firm, each with its own distinctive values. Looking at the organizational culture from a differentiation point of view is more realistic when the focus is on large organizations, such as MNCs, because they hire personnel worldwide, are requested to constantly introduce new technology and are made of several different departments/divisions/units. Overall, this makes a clear unitary culture quite unlikely (Alavi *et al.*, 2005).

2.3.4 Organizational culture and knowledge sharing behaviors. Many studies have investigated the influence of organizational culture on knowledge management (Davenport *et al.*, 1998; De Long and Fahey, 2000; Janz and Prasarnphanich, 2003), demonstrating that cultures valuing creativity and ideas exchange are more likely to support knowledge management initiatives (Gupta and Govindarajan, 2000). More specifically, scholars have found it to be highly critical to employees' knowledge sharing behaviors (Al-Alawi *et al.*, 2007; McDermott and O'Dell, 2001; Sackmann and Friesl, 2007).

Within the particular context of an MNC, corporate culture helps coordinate a dispersed organization by supporting the transfer of information, knowledge, processes and people (Sørensen, 2002). Nevertheless, knowledge creation and sharing mostly depend on employees' willingness to engage in such processes. Following Hofstede (1991), this paper contends that, in taking part in the organizational processes, employees will behave

according to how they perceive the firm's culture. Thus, once employees internalize the organizational cultural values, they convert their conducts consistently, letting the culture guide their attitudes and behaviors. This implies that different types of organizational culture will lead to different types of knowledge-sharing behaviors (Alavi *et al.*, 2005). However, so far few studies have investigated the way corporate culture affects MNCs' employees' knowledge sharing orientation. Many theorized that countries' institutional distance shapes transnational transfer of practices within MNCs (Kostova, 1999), while others suggested that technological transfer is more likely to occur when the organizations involved are culturally compatible (Kedia and Bhagat, 1988), thus leaving the relationship presented in this paper almost unexplored.

3. Hypotheses development

3.1 Organizational culture typologies and knowledge sharing behaviors

To investigate the role played by corporate culture in shaping subsidiaries' employees' knowledge sharing behaviors, this paper offers the following hypotheses.

3.1.1 Innovative culture and knowledge sharing behaviors. An innovative culture is mainly characterized by the focus on entrepreneurship, creativity, and the need for the firm to find new growth opportunities outside (Deshpandé *et al.*, 1993). Employees' risk orientation and rapid adaptability to evolution are central to this organizational culture. Being innovative means being able to rapidly find new solutions and offer new products by reacting to the dynamism of the market through a high degree of flexibility.

Providing an organization with an innovative culture thus lead to value and exploit employees' creativity; that is, their capacity to generate new solutions and knowledge and to share them. Culturally innovative firms are thus more likely to support social interaction and to stimulate employees to mutually exchange opinions and ideas, both voluntarily and on demand. Therefore, it is expected that:

H1. Innovative organizational culture is positively related to employees' orientation toward both knowledge donating and knowledge collecting.

3.1.2 Competitive culture and knowledge sharing behaviors. A competitive culture is rather associated with organizations that focus on more mechanistic and rational approaches to gain competitive advantages over rivals (e.g. goals scheduling and achievement and task accomplishment) (Campbell and Freeman, 1991). Work practices and tasks are usually designed to boost both internal and external competition by stimulating employees to work hard to achieve the firm's market and financial objectives. Accordingly, transactions are governed by market mechanisms and organizational effectiveness is defined in terms of market superiority and competitive advantage with respect to rivals (Deshpandé *et al.*, 1993).

Thus, organizations characterized by a competitive culture are expected to be mainly oriented toward strictly planned activities; that is, the "good worker" is the one showing high ability in terms of production- and achievement orientation. Generally, winning is everything in such a competitive culture (Suppiah and Sandhu, 2011), which is likely to push workers to carefully monitor their own performance and make sure that personal goals are attained. Consistently, within such organizations, knowledge is seen as a critical source of power and distinctiveness; given this, their employees may be inhibited to voluntarily donate their knowledge to help colleagues. Conversely, they will rather prefer to collect critical information to support their own purpose by committing in knowledge collecting activities that are beneficial to them:

H2. Competitive organizational culture is negatively related to employees' orientation toward knowledge donating and positively related to their orientation toward knowledge collecting.

3.1.3 Bureaucratic culture and knowledge-sharing behaviors. When the focus is on procedures and rules, the firm is likely to show a bureaucratic culture, which highlights the

need for stability, efficiency and formalization. It usually emphasizes the use of hierarchical tools to coordinate actions and decisions, as well as the need for accurate planning activities to make operations efficient. Such an organizational culture tends to be characterized by multiple layers of hierarchical levels operating with a low degree of mutual interaction; transactions are governed by rigorous surveillance and direction; consistently, effectiveness is evaluated according to the extent to which ex ante clearly stated objectives are achieved. Thus, firms showing a dominating bureaucratic culture accentuate managers' authority over lower organizational levels and their focus on scheduling and efficiency. That is, leaders are usually good coordinators, organizers and administrators. The existence of rules and regulations makes the decision-making process highly centralized; consistently, employees are poorly involved in taking risks and responsibilities resulting from their own choices. Following this, little or no power is given to their personal initiative and creativity (Suppiah and Sandhu, 2011). Hence, prior researches (Silverthorne, 2004) demonstrate that bureaucratic organizational cultures pose great challenges in maintaining employees' job satisfaction, which is an important antecedent for knowledge-sharing behaviors (Cabrera *et al.*, 2006). Based on this, this study hypothesizes that:

H3. Bureaucratic organizational culture is negatively related to employees' orientation toward both knowledge donating and knowledge collecting.

3.1.4 Community culture and knowledge sharing behaviors. A community culture emphasizes employees' cohesiveness, participation in decision-making and work satisfaction rather than mere financial and market share goals (Deshpandé *et al.*, 1993); great attention is paid to human resources as well as to their loyalty to the company, trust and mutual respect. The firm commits itself to be conceived of as a family.

By valuing human resources and their contribution to the firm, a community culture is likely to create a work environment that supports empowerment activities and employees' career advance, which in turn improves internal communication by stressing teamwork and socialization opportunities and reducing internal hierarchical barriers. Such a culture is consistent with mentors, facilitators and parent-figure workers (Campbell and Freeman, 1991). Following this, it is likely to characterize friendly places to work where people are used to share a lot about their experiences, know-how, personal life, and so on (Suppiah and Sandhu, 2011):

H4. Community organizational culture is positively related to employees' orientation toward both knowledge donating and knowledge collecting.

3.2 Top management support and knowledge sharing behaviors

Besides the role of organizational culture in shaping employees' behaviors and orientations, top management support is a critical means through which values and norms are communicated across all organizational levels. Consistently, perceived top management support is considered as one of the most relevant influences on employees' willingness to share knowledge with colleagues. Of course, this support should be encouraging rather than coercive (Connelly and Kelloway, 2003, p. 294); that is, employees should receive suggestions and feedback from their superior about what to share and how to do it within the firm to improve their involvement in organizational activities and their motivation to contribute to the firm's performance. Thus, the creation and maintenance of a strong organizational knowledge-sharing orientation requires the employees to feel supported by top management. Accordingly, several studies demonstrate the importance of an encouraging top management support for knowledge management and knowledge sharing initiatives (Davenport *et al.*, 1998; Storey and Barnett, 2000).

In addition to the role of organizational culture to guide employees toward the adoption of specific values and behaviors, management team support is essential in motivating workers to make this adoption successful. In case knowledge leaders engage seriously in transmitting a knowledge-sharing culture across all organizational levels, employees will be

more willing to take part in ideas exchange activities with colleagues. The following hypothesis is thus formulated:

H5. Top management support is positively related to employees' orientation toward both knowledge donating and knowledge collecting.

Figure 2 illustrates the theoretical model to be empirically tested.

4. Research

4.1 Sample selection

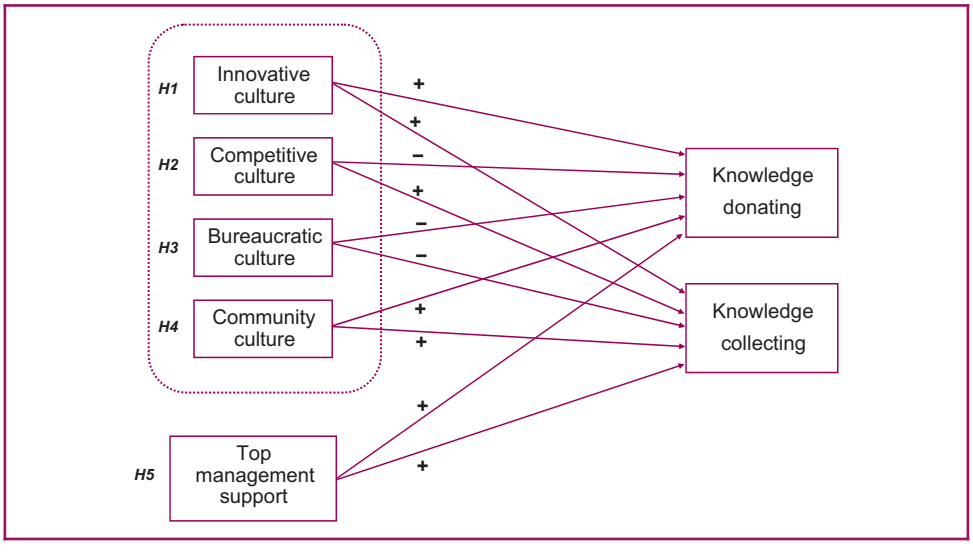
Data used for this study come from a more extensive research, conducted over the years 2011-2012. The population included manufacturing MNCs' subsidiaries located in the Italian region of Tuscany and operating in a range of industrial sectors. According to the Chamber of Commerce database[1], the population was composed of 33 subsidiaries. The need to analyze this specific set of firms is consistent with the importance of understanding the distinctive features characterizing these companies, which play an important role in the region's competitiveness.

Starting from the aforementioned population of 33 subsidiaries, 6 of them accepted to participate in this study (18.18 per cent).

4.2 The relevance of the empirical setting

Following the purpose of this paper to investigate the relationship between organizational culture and knowledge sharing within MNCs' subsidiaries, several reasons make the empirical setting particularly valuable. First, knowledge transfer activities are at the core of MNCs business (Kostova, 1999) because their ability to internally share knowledge is fundamental for maintaining their competitive advantage. Second, given that knowledge transfer can be affected by country-level variables (Szulanski, 1996), this paper focuses on MNCs' subsidiaries operating in a single country (i.e. Italy), thus holding factors such as cultural distance, host country risk and foreign direct investment openness (Hébert *et al.*, 2005) constant and, therefore, excluding the influence of such factors on knowledge-sharing behaviors. Third, knowledge-sharing processes may be highly specific to subsidiaries in such a way that individuals working within certain subsidiaries are expected to collaborate on specific issues rather than others, as well as to have in common cultural aspects to share the same language, similar ideas, and so on (Marschan-Piekkari *et al.*, 1999).

Figure 2 Research model



This suggests that adopting a more traditional subsidiary–headquarter perspective or a subsidiary–subsidiary one may overlook the important yet less studied aspects of within-subsidiary knowledge-flow phenomenon. Four, subsidiaries tend to establish relationships with similar others (Makela *et al.*, 2007), leading some of them to become isolated from the overall knowledge transfer activities within the MNC (Monteiro *et al.*, 2008). Being aware of what organizational culture dominates within the subsidiaries as well as the role it plays in shaping employees' knowledge-sharing behaviors may thus be fundamental when it comes to understanding how subsidiaries build connections among them. Five, investigating employees' perceptions of the corporate culture is relevant because MNCs heavily rely on organizational culture as a mechanism for controlling foreign subsidiaries (Selmer and De Leon, 1996). Consistently, prior research suggests that the degree of homogeneity between foreign subsidiaries and the parent corporation is a critical issue to MNCs (Lincoln *et al.*, 1978).

4.3 Data collection

Information was gathered via Web surveys. A draft questionnaire was pilot-tested with 53 middle managers of three companies to ensure that content and wording were free of misunderstandings. The questionnaire was then revised and retested with 45 employees. A meeting with each MNC's human resource director was carried out to explain the research purpose and identify the sample of workers to be studied. Responses were required from key informants knowledgeable in a variety of strategic activities (Foss *et al.*, 2009); in particular, the authors aimed at selecting employees that can be defined as positioned at the center of strategic information flows and are thus considered nodes of knowledge. Following prior literature (Cohen and Levinthal, 1990), such employees are likely to foster the firm's absorptive capacity (i.e. learning ability) by translating information into a form that can be better understood by anyone in the firm. This sampling criterion allowed to survey employees directly involved in knowledge-sharing processes: in all cases, they possess critical knowledge that may concern clients, and/or suppliers, and/or R&D, and/or markets and/or specific technical issues.

A total of 776 invitations were sent out for participating in the research and, after two follow-up reminders, 389 questionnaires were fully filled (response rate of 50.12 per cent). The average response rate across all subsidiaries has been 58 per cent (29 per cent the minimum; 84 per cent the maximum). Response rate and sample description are provided in Table I.

4.4 Measures

Self-reported measures were used to operationalize all variables in the questionnaire (Spector, 1994), which was composed of 27 items, derived from scales adopted in previous studies. All variables were measured using a seven-point Likert type scale (1 = "Strongly disagree" and 7 = "Strongly agree").

4.4.1 Dependent variables. Van den Hooff and Van Weenen (2004) provided the scale to measure knowledge donating (a three-item scale) and knowledge collecting (a four-item scale). The respondents were asked to give their opinion about their orientation toward both the voluntary donation of knowledge (e.g. "When I learn something new, I tell my colleagues about it") and their tendency to ask for it to colleagues (e.g. "Colleagues share their knowledge with me when I ask them to").

4.4.2 Independent variables. The organizational culture scale (16 items) was adapted from the study by Deshpandé *et al.* (1993), which in turn build on the study by Campbell and Freeman (1991).

Top management support was measured through a four-item scale adapted from the study by Tan and Zhao (2003).

4.4.3 Control variables. To capture the effects of further factors that are likely to affect employees' knowledge-sharing behaviors, the following control variables were included in

Table I Sample description and response distribution (N = 389)

Classification	*Frequency*	*(%)*
Questionnaires sent out	776	
Questionnaires filled in	389	
Response rate		50.12
Distribution by gender		
Male	292	75
Female	97	25
Distribution by age (years)		
< 25	4	1.03
25-34	84	21.59
35-44	166	42.67
45-54	112	28.79
55-64	22	5.66
> 64	1	0.26
Distribution by education		
Middle school	3	0.77
Technical or training certificate	8	2.06
High school	101	25.96
Bachelor's degree	21	5.40
Master's degree	179	46.02
PhD	77	19.79
Distribution by tenure (years)		
< 5	115	29.56
5-9	95	24.42
10-14	66	16.97
15-24	74	19.02
> 24	39	10.03

the empirical analysis: firm's size (i.e. number of employees), firm's age (i.e. years from the firm's inception), employees' age, gender (dummy variable, 0 = male, 1 = female), education level (measured as years of education) and tenure (measured as years spent within the firm).

5. Findings

5.1 Reliability and non-response bias check

Correlation matrix and Cronbach's alpha coefficients for all variables are reported in Table II. As for the internal reliability of the measurement scales, the analysis resulted in alpha coefficients which ranged from 0.66 to 0.92. Six of the seven measures are above the Nunnally (1978) criterion, according to which 0.70 is the minimum value to be considered acceptable. Even though one of the measures falls just below this criterion (i.e. the competitive culture measure displays an alpha coefficient of 0.66), this study builds on Peterson (1994), suggesting that 0.60 is the "criterion-in-use".

To check the robustness of the data, demographic variables and questionnaire responses between early and late respondents[2] were compared, based on the assumption that late respondents are more nearly like the non-respondents than like the early respondents (Lin and Schaeffer, 1995). As no difference was found between the two groups, the authors are confident that data do not suffer from problems of non-response bias.

5.2 Regression results

The results of two multiple regression analyses referred to knowledge donating and knowledge collecting are provided in Tables III and IV.

To detect the presence of multicollinearity among explanatory variables, for each model, the variance inflation factor (VIF) was calculated (see Tables III and IV).

Table II Correlation matrix and Cronbach's alpha for all variables (n = 389)

Variable	*Mean*	*SD*	*Minimum*	*Maximum*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Firm size	1,651	913	50	2,616	–												
2. Firm age	25	10.33	16	47	−0.28*	–											
3. Age	40	8.01	22	65	0.04	0.35*	–										
4. Gender	0.25	0.43	0	1	0.30*	−0.15*	−0.04	–									
5. Education	16.74	2.85	6	20	0.38*	−0.08	−0.16*	0.25*	–								
6. Tenure	10.70	8.85	1	41	−0.09	0.18*	0.62*	−0.01	−0.42*	–							
7. Knowledge donating	5.03	1.12	2	7	0.24*	−0.23*	−0.11*	0.04	0.03	−0.02	*0.76*						
8. Knowledge collecting	5.95	0.93	2	7	0.03	−0.18*	−0.15*	−0.01	−0.02	−0.13*	0.63*	*0.84*					
9. Innovative culture	5.15	1.29	1	7	0.41*	−0.40*	−0.11*	0.20*	0.13*	−0.10*	0.45*	0.36*	*0.86*				
10. Competitive culture	5.21	1.04	1	7	0.34*	−0.27*	−0.07	0.10	0.14*	−0.11*	0.39*	0.37*	0.67*	*0.66*			
11. Bureaucratic culture	5.22	1.13	1	7	0.36*	−0.29*	−0.05	0.08	0.09	−0.05	0.45*	0.39*	0.59*	0.67*	*0.83*		
12. Community culture	4.50	1.29	1	7	0.19*	−0.16*	−0.03	−0.01	0.06	−0.07	0.44*	0.32*	0.54*	0.49*	0.58*	*0.83*	
13. Top management support	5.21	1.40	1	7	0.24*	−0.20*	−0.00	0.05	−0.06	0.06	0.48*	0.36*	0.49*	0.41*	0.48*	0.49*	*0.92*

Notes: *Correlation is significant at the 0.05 level; Cronbach's coefficients alpha are shown on the diagonal

Table III Results of multiple regression analysis on knowledge donating

Variable	*Knowledge donating (N = 389)* Model 1	Model 2	Model 3
Intercept	6.54*** *(12.06)*	3.34*** *(5.63)*	2.80*** *(4.67)*
Firm size	−0.13** *(−2.94)*	−0.06 *(−1.39)*	−0.04 *(−1.03)*
Firm age	−0.03*** *(−5.03)*	−0.01 *(−1.48)*	−0.01 *(−1.24)*
Age	−0.01 *(−0.76)*	−0.01 *(−1.66)*	−0.01 *(−1.59)*
Gender	−0.03 *(−0.23)*	−0.06 *(−0.50)*	−0.06 *(−0.55)*
Education	0.00 *(0.11)*	−0.01 *(−0.35)*	0.00 *(0.10)*
Tenure	0.01 *(0.74)*	0.01 *(1.36)*	0.01 *(1.04)*
Innovative culture		0.16* *(2.47)*	0.11 *(1.80)*
Competitive culture		0.03 *(0.43)*	0.03 *(0.36)*
Bureaucratic culture		0.18* *(2.43)*	0.14 *(1.87)*
Community culture		0.18*** *(3.44)*	0.13* *(2.40)*
Top management support			0.19*** *(4.41)*
VIF	1.54	1.83	1.84
R^2	0.08	0.30	0.33

Notes: *t* statistics in parentheses; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table IV Results of multiple regression analysis on knowledge collecting

Variable	*Knowledge collecting (N = 389)* Model 1	Model 2	Model 3
Intercept	7.42*** (16.92)	4.91*** (8.99)	4.56*** (7.97)
Firm size	−0.05 *(−1.46)*	0.01 *(0.40)*	0.02 *(0.72)*
Firm age	−0.02*** *(−3.34)*	0.00 *(0.20)*	0.00 *(0.43)*
Age	−0.00 *(−0.43)*	−0.01 *(−1.13)*	−0.01 *(−1.08)*
Gender	−0.04 *(−0.35)*	−0.06 *(−0.62)*	−0.07 *(−0.66)*
Education	−0.03 *(−1.75)*	−0.04** *(−2.61)*	−0.03* *(−2.21)*
Tenure	−0.01 *(−1.57)*	−0.01 *(−1.41)*	−0.01 *(−1.63)*
Innovative culture		0.09 *(1.82)*	0.06 *(1.15)*
Competitive culture		0.12 *(1.86)*	0.12 *(1.79)*
Bureaucratic culture		0.16* *(2.50)*	0.13* *(2.10)*
Community culture		0.05 *(1.26)*	0.02 *(0.43)*
Top management support			0.12** *(3.02)*
VIF	1.54	1.83	1.84
R^2	0.06	0.22	0.24

Notes: *t* statistics in parentheses; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

As shown in Tables III and IV, in Model 1, only the control variables were entered; Model 2 also includes the four organizational culture typologies (i.e. innovative, competitive, bureaucratic and community culture); Model 3 adds the main effect of top management support.

As for the control variables, the findings show that firm's size matters only to knowledge donating (Table III, Model 1, $\beta = -0.13$, $p < 0.01$). Hence, the bigger the firm, the less the individuals are oriented toward voluntarily sharing knowledge with others. Conversely, no significant evidence arises for knowledge collecting activities (Table IV). The analysis also strongly indicates that older subsidiaries show a lower orientation toward both knowledge-donating and knowledge-collecting behaviors (Table III, Model 1, $\beta = -0.03$, $p < 0.001$ for knowledge donating; Table IV, Model 1, $\beta = -0.02$, $p < 0.001$ for knowledge collecting). Furthermore, for both dependent variables, employees' age, gender and tenure do not play any significant role. Differently, employees' education is found to be strongly and negatively associated with knowledge collecting (Table IV, Model 2, $\beta = -0.04$, $p < 0.01$; Model 3, $\beta = -0.03$, $p < 0.05$), although no significant evidence arises with regard to the relationship with knowledge donating.

The results provide a highly differentiated evidence on the relationship between the four organizational culture typologies and the two dependent variables. Firstly, they show that

in case employees perceive the organizational culture to be innovative, this stimulates them to donate knowledge to others (Table III, Model 2, $\beta = 0.16$, $p < 0.05$), while no statistical significance is found for knowledge collection processes (Table IV). *H1* is thus partially supported.

The empirical analysis does not provide support for *H2*, as any statistical significance about the impact of competitive culture on employees' knowledge donating and collecting orientations was found.

Surprisingly, employees' perception of an organizational bureaucratic culture results in a fostered orientation toward both voluntarily sharing knowledge with others (Table III, Model 2, $\beta = 0.18$, $p < 0.05$) and sharing and getting it on demand (Table IV, Model 2, $\beta = 0.16$, $p < 0.05$; Model 3, $\beta = 0.13$, $p < 0.05$). The empirical evidence thus contradicts authors' expectation that a bureaucratic and hierarchical culture is likely to inhibit both dimensions of knowledge-sharing processes. Therefore, *H3* is therefore not supported.

In addition, a community culture is found to be strongly and positively related to employees' willingness to donate knowledge (Table III, Model 2, $\beta = 0.18$, $p < 0.001$; Model 3, $\beta = 0.13$, $p < 0.05$); conversely, the relationship is not statistically significant when it comes to the knowledge collecting dimension. Thus, *H4* is partially supported.

The positive role played by top management support in fostering knowledge sharing is strongly confirmed by the analysis. Hence, it has found to clearly encourage knowledge donating (Table III, Model 3, $\beta = 0.19$, $p < 0.001$) as well as knowledge-collecting behaviors (Table IV, Model 3, $\beta = 0.12$, $p < 0.01$). *H5* is thus fully supported.

A synthesis of the results is given in Table V.

6. Discussion

This research is an attempt to contribute to the understanding of how companies can establish a successful knowledge sharing strategy by comprehending the role played by their organizational culture. The discussion of the results suggests several interesting insights that are discussed here below.

6.1 Demographic and control variables

The empirical analysis shows that larger firms tend to inhibit employees' knowledge donating behaviours. This can be explained by the fact that, within such companies, workers may find it difficult to establish social interactions, given that, as research suggests (Granovetter, 1973), network size determines employees' opportunities to meet, entertain

Table V Synthesis of results

Hypothesis	*Description*	*Result*
H1	Innovative organizational culture is positively related to employees' orientation toward both knowledge donating and knowledge collecting	Partially supported
H2	Competitive organizational culture is negatively related to employees' orientation toward knowledge donating and positively related to their orientation toward knowledge collecting	Not supported
H3	Bureaucratic organizational culture is negatively related to employees' orientation toward both knowledge donating and knowledge collecting	Not supported
H4	Community organizational culture is positively related to employees' orientation toward both knowledge donating and knowledge collecting	Partially supported
H5	Top management support is positively related to employees' orientation toward both knowledge donating and knowledge collecting	Fully supported

relationships and build mutual trust. In this sense, high physic distance can hinder individuals' interactions with others within the firm.

Furthermore, this study demonstrates that firm's age has a negative effect on knowledge-sharing orientations. This evidence is consistent with the argument that older companies are likely to exhibit organizational inertia and myopia and to focus more on what they did in the past and the way they did it, instead of searching for new information and inputs (Guillen, 2002). As sharing knowledge requires the willingness to explore new ways of doing things, new solutions and new ideas, it is likely that older organizations are, by virtue of their inertia, not interested in investing resources for achieving these outcomes. A further explanation regarding this finding may be that, by virtue of their age, older firms have routines, which may lead to two effects: on one side, they make the need to internally exchange knowledge and information less vital; on the other side, sharing knowledge with others may imply an unlearning of such established routines, which may be more difficult to such firms (Sapienza *et al.*, 2006). Accordingly, existing research confirms (Autio *et al.*, 2000) that older firms find it more challenging to modify their cognitive, political and relational patterns because their managers usually develop biases and standard responses to problems that constrain their capability to adapt to new circumstances.

In addition, employees' level of education is found to hinder knowledge collecting. This evidence may be consistent with the argument that more educated employees perceive themselves as more competent and knowledgeable, thereby perceiving higher social costs (e.g. reputation and status reduction) when asking others for knowledge as well as a greater risk of losing power and distinctiveness when giving their knowledge away.

6.2 Explanatory variables

The results show the difficulty in delineating a clear role played by organizational culture toward the two knowledge-sharing dimensions. Hence, the four organizational culture typologies affect employees' knowledge donating and knowledge collecting behaviors in different ways, confirming that they have a different nature and can be influenced by different factors (Van den Hooff and de Ridder, 2004).

Specifically, the positive influence of innovative culture on knowledge donating supports the importance of stimulating individual creativity, flexibility and openness toward change and adaptation to enhance mutual and voluntary knowledge sharing behaviors among employees. As already explained, it was not expected to find organizational bureaucratic culture to be positively related to both knowledge-sharing dimensions. This result could be explained by the importance of the enabling side of bureaucracy (Adler and Borys, 1996), which provides guidance to organizational members and clarifies responsibilities, helping them be and feel more effective and facilitating task performance. Similarly, research shows that higher degree of bureaucratization can reduce internal role conflict and ambiguity, thus increasing employees' work satisfaction and reducing potential feelings of stress and alienation (Jackson and Schuler, 1985). This result is also consistent with Sine *et al.*'s (2006) arguments, which point out that organizations need a certain degree of formalization and bureaucratization to let information flow across departments.

As for the role played by the community culture, the empirical analysis supports the hypothesis as regards knowledge-donating behaviors by demonstrating that organizations based on teamwork, socialization and human resources empowerment are more likely to facilitate the voluntary behaviors of sharing knowledge.

Overall, the findings partially support the relationships hypothesized in this paper. In fact, on one side, innovative, competitive and community culture do to play a strong role in shaping employees' orientations toward sharing knowledge with others, as this study expected. In particular, this is more evident when knowledge collecting behaviors are examined: in this case, only two of the five relationships are statistically significant (i.e. those concerning bureaucratic culture and top management support as explanatory

variables). On the other side, bureaucratic culture is found to strongly and positively affect knowledge sharing, both when it is a voluntary act and when it is performed on demand. Moreover, this organizational culture typology is the only one showing statistical significance for both knowledge sharing dimensions investigated, thus demonstrating a powerful influence on the dependent variables investigated with respect to the other organizational culture typologies analyzed.

Finally, the results strongly demonstrate that employees' perception of a powerful top management support is a critical enabler to foster knowledge-sharing activities within the firm. This finding confirms the literature arguing that a strong management support leads employees to be more willing to participate in ideas exchange with colleagues (Storey and Barnett, 2000).

7. Conclusion

Current research on knowledge transfer within MNCs largely looks at how it occurs among subsidiaries, as well as between subsidiaries and headquarter, while neglecting a more micro-level of analysis. Only a few scholars have investigated intra-subsidiary employees' knowledge sharing. Additionally, despite several contributions explore organizational culture as an antecedent to knowledge-based processes, an empirical study highlighting the influence of different types of organizational culture on knowledge sharing behaviors is missing. In particular, an empirical application of one of the most established organizational culture model, namely, the CVF, is still lacking. Based on this, the purpose of this study is to contribute to the lack of consensus as to how different types of organizational culture can affect employees' knowledge sharing behaviors (Moon *et al.*, 2012).

To address this issue, this research analyzes 389 employees from six manufacturing MNCs' subsidiaries located in the Tuscan Italian region, and postulates that the main four organizational culture typologies highlighted in the literature (i.e. innovative, competitive, bureaucratic and community culture) play a different role when associated with the two knowledge sharing sub-processes. The research also explore the influence of the top management support, as the literature particularly points to the relevance of this enabler to organizational behaviors (Storey and Barnett, 2000). Overall, the findings show that an innovative, community, and bureaucratic culture positively affect knowledge donating, while knowledge collecting is positively associated only with a bureaucratic culture. Moreover, a strong top management support is particularly critical to both knowledge donating and collecting behaviors.

7.1 Contribution

This paper offers three main contributions to extant literature. Despite several studies analyze the relationship between organizational culture and knowledge sharing (e.g. Al-Alawi *et al.*, 2007; Sackmann and Friesl, 2007), an empirical application of an established organizational culture model, such as the cultural values framework, to knowledge sharing behaviors is still lacking. Hence, to date, papers have mostly focused on the importance of building a knowledge-sharing culture, without investigating different types of organizational culture and how they respectively affect knowledge sharing. Second, this research is among the first attempts to simultaneously and empirically investigate the two dimensions of knowledge sharing, i.e. knowledge donating and knowledge collecting. While most researchers either take the knowledge sender's perspective or focus on the getting knowledge approach (e.g. Haas and Hansen, 2007), so far only a few contributions have looked at these two sub-processes at the same time (i.e. De Vries *et al.*, 2006; Lin, 2007; Van den Hooff and De Ridder, 2004; Van den Hooff and Hendrix, 2004). Third, this paper adds evidence to the literature on knowledge processes within MNCs, as, while so far scholars have largely investigated knowledge transfer among subsidiaries (Teece, 1977) and cultural challenges between home and host country (Adler, 1995), few of them have examined what matters for intra-subsidiary knowledge-sharing

process to be successful. By providing a micro-level of analysis, this paper is thus a response to the call for more research looking at the individual behavioral foundations of knowledge-based processes (Felin and Hesterly, 2007).

7.2 Limitations

Beside the contribution of this paper, the authors are aware of its limitations. Because of the sampling criterion, the results cannot be easily generalized. First, the empirical analysis involves only companies operating in a specific area (i.e. central Italy) in such a way that national culture may have affected the results. Moreover, this paper does not take into account the potential role played by organizational structure in influencing intra-firm knowledge sharing behaviors. However, existing contributions highlight its relevance to such behaviors (Pierce, 2012; Riege, 2005). Furthermore, the authors only relied on cross-sectional design and self-reported perceptions of the variables investigated, thus making the value of this study potentially limited by individuals' subjectivity.

7.3 Implications for research and practice

The findings of this paper point out several implications, both for practitioners and researchers. To better plan and implement targeted interventions to enhance the internal flows of information, managers should separately consider the two knowledge sharing dimensions (i.e. knowledge donating and knowledge collecting). Moreover, being aware of whether and how different types of culture affect knowledge-sharing processes among employees may help managers make more informed decisions instead of merely relying only on their intuition or simply take things for granted (Suppiah and Sandhu, 2011). In turn, scholars should foster their understanding regarding different types of knowledge sharing behaviors by providing more theoretical and empirical work on their enablers and outcomes.

Based on the evidence that larger networks are likely to hinder employees' voluntary knowledge sharing behaviors, practitioners should provide the right opportunities to reduce such negative impact. Increasing mutual relationships and making employees feel part of the same network may help demolish the barriers posed by the physic distance and over dispersion of colleagues. Consistently, researchers may study the effect of network-related determinants on different types of knowledge sharing behaviors.

As education level is negatively associated with knowledge collecting, it may be crucial to pay attention to individuals' perceptions regarding their know-how to turn it into a strength rather than a weakness. Fostering knowledge flows coming from more knowledgeable actors may help value and exploit their intellectual capital. This result may drive future researchers in understanding what matters to highly educated employees to be willing to share knowledge with others, given that they are critical actors to firm's innovation and competitiveness (Collier *et al.*, 2011).

The empirical evidence shows the positive impact of bureaucracy on knowledge sharing and recommends managers to emphasize the need for stability, order and efficiency, relevant to the establishment of smooth knowledge flows within the organizations. This finding suggests academicians to pay attention to how firms may benefit from a certain degree of hierarchy, thus looking at the traditionally negative side of organizations as a potential advantage for both individual- and firm-level outcomes.

Finally, the importance of providing employees with an encouraging support from the top management suggests managers to realize the positive consequences that may arise from facilitating and supporting employees' interactions and knowledge sharing activities, as well as from providing the resources necessary to make them successful.

7.4 Areas for future research

This study offers several directions for future research. Given the industrial cluster culture rooted in the territory where the firms investigated are located, controlling for this effect may help rule out alternative explanations about knowledge sharing due to such particular location.

Moreover, to explore the role played by national culture (Doney *et al.*, 1998; Hofstede, 1991), further research may improve this study by looking at the extent to which it influences intra-organizational knowledge-sharing processes.

It could also be interesting to replicate the empirical analysis on a sample of purely domestic firms, which, by definition, exclusively focus on their home market and have no ambitions of expanding abroad and no international revenues. In comparing international and domestic companies, the literature has found differences in terms of risk perception (Cavusgil and Naor, 1987), entrepreneurial personality, such as proactivity and tolerance ambiguity (Crant and Bateman, 2000) and entrepreneurial team experience (McDougall *et al.*, 2003). Taking into account such differences could help understand whether the empirical evidence presented in this research reflects the distinctive characteristics of MNC's subsidiaries or whether it can also be applied to domestic ones.

Future studies could investigate the moderator effect of some variables in the relationship between organizational culture and knowledge sharing by contributing to set the boundary conditions under which the relationship holds. By looking at the main effect of different organizational culture typologies on knowledge sharing, this paper implicitly agrees with Geertz (1973, p. 29), who claims that "cultural analysis is intrinsically incomplete. And, worse than that, the more deeply it goes, the less complete it is".

Given the importance of organizational structure to knowledge sharing, future studies could explore the extent to which organization design leads knowledge to be highly distributed within the firm or, conversely, to be collected all in one place (e.g. Gressgård *et al.*, 2014; Rulke and Galaskiewicz, 2000), thus affecting the way people benefit from the knowledge available within the firm.

Additionally, in response to the criticism about the use of self-perceptions (Spector, 1994), the authors believe that an objective measurement of knowledge sharing activities could enrich the more common self-perceptual assessment, by collecting, for instance, third-party and archival data (Wang and Noe, 2010). A multilevel analysis may be another interesting way for digging into this topic in the future to look at how knowledge sharing occurs at the individual (i.e. among colleagues), organizational (i.e. within MNCs' network) and country level (i.e. between subsidiaries and local firms). In this sense, this research agrees with Mowday and Sutton (1993) that the study of knowledge sharing in MNCs should provide a multilevel approach, which, even if challenging, is better able to capture the complexity involved in the examination of such a phenomenon.

Notes

1. The Italian Chamber of Commerce represents all Italian companies and is aimed to link institutions, organizations and associations, thereby providing services as well as development strategies likely to promote the growth of the national economy.

2. Early respondents are those who filled out the questionnaire at the first message of invitation; late respondents are those who provided their answers at the first or second reminder.

References

Adler, N. (1995), *International Dimensions of Organizational Behavior*, 2nd ed., PWS Kent, Boston, MA.

Adler, P.S. and Borys, B. (1996), "Two types of bureaucracy: enabling and coercive", *Administrative Science Quarterly*, Vol. 41 No. 1, pp. 61-89.

Al-Alawi, A.I., Al-Marzooqi, N.Y. and Mohammed, Y.F. (2007), "Organizational culture and knowledge sharing: critical success factors", *Journal of Knowledge Management*, Vol. 11 No. 2, pp. 22-42.

Alavi, M., Kayworth, T.R. and Leidner, D.E. (2005), "An empirical examination of the influence of organizational culture on knowledge management practices", *Journal of Management Information Systems*, Vol. 22 No. 3, pp. 191-224.

Almeida, P., Song, J. and Grant, R.M. (2002), "Are firms superior to alliances and markets? An empirical test of cross-border knowledge building", *Organization Science*, Vol. 13 No. 2, pp. 147-161.

Ardichvili, A., Page, V. and Wentling, T. (2003), "Motivation and barriers to participation in virtual knowledge-sharing communities of practice", *Journal of Knowledge Management*, Vol. 7 No. 1, pp. 64-77.

Ashforth, B.E. (1985), "Climate formation: issues and extensions", *Academy of Management Review*, Vol. 10 No. 4, pp. 837-847.

Asmussen, C.G., Foss, N.J. and Pedersen, T. (2013), "Knowledge transfer and accommodation effects in multinational corporations: evidence from European subsidiaries", *Journal of Management*, Vol. 39 No. 6, pp. 1397-1429.

Autio, E., Sapienza, H.J. and Almeida, J.G. (2000), "Effects of age at entry, knowledge intensity, and imitability on international growth", *Academy of Management Journal*, Vol. 43 No. 5, pp. 909-924.

Bhagat, R.S., Kedia, B.L., Harveston, P.D. and Triandis, H.C. (2002), "Cultural variations in the crossborder transfer of organizational knowledge: an integrative framework", *Academy of Management Review*, Vol. 27 No. 2, pp. 204-221.

Cabrera, Á., Collins, W.C. and Salgado, J.F. (2006), "Determinants of individual engagement in knowledge sharing", *International Journal of Human Resource Management*, Vol. 17 No. 2, pp. 245-264.

Cameron, K.S. and Quinn, R.E. (1999), *Diagnosing and Changing Organizational Culture*, Addison-Wesley, Reading, MA.

Campbell, J.P. and Freeman, S.J. (1991), "Cultural congruence, strength and type: relationships to effectiveness", in Woodman, R.W. and Passmore, W.A. (Eds), *Research in Organizational Change and Development*, Vol. 5, JAI Press, Greenwich, CT.

Cavusgil, S.T. and Naor, J. (1987), "Firm and management characteristics as discriminators of export marketing activity", *Journal of Business Research*, Vol. 15 No. 3, pp. 221-235.

Cohen, W.M. and Levinthal, D.A. (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35 No. 1, pp. 128-152.

Collier, W., Green, F., Kim, Y.-B. and Peirson, J. (2011), "Education, training and economic performance: evidence from establishment survival data", *Journal of Labor Research*, Vol. 32 No. 4, pp. 336-361.

Connelly, C.E. and Kelloway, E.K. (2003), "Predictors of employees' perceptions of knowledge sharing culture", *Leadership & Organization Development Journal*, Vol. 24 No. 5, pp. 294-301.

Crant, J.M. and Bateman, T.S. (2000), "Charismatic leadership viewed from above: the impact of proactive personality", *Journal of Organizational Behaviour*, Vol. 21 No. 1, pp. 63-75.

Davenport, T.H., De Long, D.W. and Beers, M.C. (1998), "Successful knowledge management", *Sloan Management Review*, Vol. 39 No. 2, pp. 43-57.

De Long, D.W. and Fahey, L. (2000), "Diagnosing cultural barriers to knowledge management", *Academy of Management Executive*, Vol. 14 No. 4, pp. 113-127.

De Vries, R.E., Van den Hooff, B. and De Ridder, J.A. (2006), "Explaining knowledge sharing: the role of team communication styles, job satisfaction, and performance beliefs", *Communication Research*, Vol. 33 No. 2, pp. 115-135.

Denison, D.R. (1990), *Corporate Culture and Organizational Effectiveness*, Wiley, New York, NY.

Deshpandé, R., Farley, J.U. and Webster, F.E. (1993), "Corporate culture, customer orientation and innovativeness in Japanese firms: a quadrad analysis", *Journal of Marketing*, Vol. 57 No. 1, pp. 23-27.

Deshpandé, R. and Webster, F.E. (1989), "Organizational culture and marketing: defining the research agenda", *Journal of Marketing*, Vol. 53 No. 1, pp. 3-15.

Doney, P.M., Canno, J.P. and Mullen, M.R. (1998), "Understanding the influence of national culture on the development of trust", *Academy of Management Review*, Vol. 23 No. 3, pp. 601-620.

Eisenhardt, K. and Santos, F. (2002), "Knowledge-base view: a new theory of strategy?", in Pettigrew, A., Thomas, H. and Whittington, R. (Eds), *Handbook of Strategy and Management*, Sage, Thousand Oaks, CA, pp. 139-164.

Felin, T. and Hesterly, W. (2007), "The knowledge-based view, nested heterogeneity, and new value creation: philosophical considerations on the locus of knowledge", *Academy of Management Review*, Vol. 32 No. 1, pp. 195-218.

Ford, D.P. and Chan, Y.E. (2003), "Knowledge sharing in multi-cultural setting: a case study", *Knowledge Management Research & Practice*, Vol. 1 No. 1, pp. 11-27.

Foss, N.J., Minbaeva, D.B., Pedersen, T. and Reinholt, M. (2009), "Encouraging knowledge sharing among employees: how job design matters", *Human Resource Management*, Vol. 48 No. 6, pp. 871-893.

Geertz, C. (1973), *The Interpretation of Cultures: Selected Essays*, Basic Books, New York, NY.

Ghoshal, S. and Bartlett, C.A. (1990), "The multinational corporation as an inter organizational network", *Academy of Management Review*, Vol. 15 No. 4, pp. 603-625.

Gooderham, P., Minbaeva, D.B. and Pedersen, T. (2011), "Governance mechanisms for the promotion of social capital for knowledge transfer in multinational corporations", *Journal of Management Studies*, Vol. 48 No. 1, pp. 123-150.

Goodman, E.A., Zammuto, R.F. and Gifford, B.D. (2001), "The competing values framework: understanding the impact of organizational culture on the quality of work life", *Organization Development Journal*, Vol. 19 No. 3, pp. 58-68.

Granovetter, M.S. (1973), "The strength of weak ties", *American Journal of Sociology*, Vol. 78 No. 6, pp. 1360-1380.

Grant, R.M. (1996), "Toward a knowledge-based theory of the firm", *Strategic Management Journal*, Vol. 17 No. S2, pp. 109-122.

Gressgård, L.J., Amundsen, O., Aasen, T.M. and Hansen, K. (2014), "Use of information and communication technology to support employee-driven innovation in organizations: a knowledge management perspective", *Journal of Knowledge Management*, Vol. 18 No. 4.

Guillen, M.F. (2002), "Structural inertia, imitation, and foreign expansion: South Korean firms and business groups in China, 1987-1995", *Academy of Management Journal*, Vol. 45 No. 3, pp. 509-525.

Gupta, A.K. and Govindarajan, V. (2000), "Knowledge flows within multinational corporations", *Strategic Management Journal*, Vol. 21 No. 4, pp. 473-496.

Haas, M.R. and Hansen, M.T. (2007), "Different knowledge, different benefits: toward a productivity perspective on knowledge sharing in organizations", *Strategic Management Journal*, Vol. 28 No. 11, pp. 1133-1153.

Hartnell, C.A., Ou, A.Y. and Kinicki, A. (2011), "Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions", *Journal of Applied Psychology*, Vol. 96 No. 4, pp. 677-694.

Hébert, L., Very, P. and Beamish, P.W. (2005), "Expatriation as a bridge over troubled water: a knowledge-based perspective applied to cross-border acquisitions", *Organization Studies*, Vol. 26 No. 10, pp. 1455-1476.

Hofstede, G. (1991), *Cultures and Organizations: Software of the Mind*, McGraw-Hill, New York, NY.

Hutchings, K. and Michailova, S. (2004), "Facilitating knowledge sharing in Russian and Chinese subsidiaries: the role of personal networks and group membership", *Journal of Knowledge Management*, Vol. 8 No. 2, pp. 84-94.

Jackson, S.E. and Schuler, R.S. (1985), "A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings", *Organizational Behavior and Human Decision Processes*, Vol. 36 No. 1, pp. 17-78.

Janz, B.D. and Prasarnphanich, P. (2003), "Understanding the antecedents of effective knowledge management: the importance of a knowledge-centered culture", *Decision Sciences*, Vol. 34 No. 2, pp. 351-384.

Jarnagin, C. and Slocum, J.W. Jr (2007), "Creating corporate cultures through mythopoetic leadership", *Organizational Dynamics*, Vol. 36 No. 3, pp. 288-302.

Jermier, J.M., Slocum, J.W., Fry, L.W. and Gaines, J. (1991), "Organizational subcultures in a soft bureaucracy: resistance behind the myth and facade of an official culture", *Organization Science*, Vol. 2 No. 2, pp. 170-194.

Kayworth, T. and Leidner, D. (2003), "Organizational culture as a knowledge resource", in Holsapple, C.W. (Ed.), *Handbook on Knowledge Management, Volume 1: Knowledge Matters*, Springer-Verlag, Heidelberg, pp. 235-252.

Kedia, B.L. and Bhagat, R.S. (1988), "Cultural constraints on transfer of technology across nations: implications for research in international and comparative management", *Academy of Management Review*, Vol. 13 No. 4, pp. 558-571.

Kets De Vries, M. and Miller, D. (1986), "Personality, culture and organization", *Academy of Management Review*, Vol. 11 No. 2, pp. 266-279.

Kogut, B. and Zander, U. (1993), "Knowledge of the firm and the evolutionary theory of the Multinational Corporation", *Journal of International Business Studies*, Vol. 24 No. 4, pp. 625-645.

Kostova, T. (1999), "Transnational transfer of strategic organizational practices: a contextual perspective", *Academy of Management Review*, Vol. 24 No. 2, pp. 308-324.

Lau, C.M. and Ngo, H.Y. (2004), "The HR system, organizational culture, and product innovation", *International Business Review*, Vol. 13 No. 6, pp. 685-703.

Lin, H.-F. (2007), "Knowledge sharing and firm innovation capability: an empirical study", *International Journal of Manpower*, Vol. 28 Nos 3/4, pp. 315-332.

Lin, I.F. and Schaeffer, N.C. (1995), "Using survey participants to estimate the impact of nonparticipation", *Public Opinion Quarterly*, Vol. 59 No. 2, pp. 236-258.

Lincoln, J.R., Olson, J. and Hanada, M. (1978), "Cultural effects on organizational structure: the case of Japanese firms in the United States", *American Sociological Review*, Vol. 43 No. 6, pp. 829-847.

Lucas, L.M. (2006), "The role of culture on knowledge transfer: the case of the Multinational Corporation", *The Learning Organization*, Vol. 13 No. 3, pp. 257-275.

McDermott, R. and O'Dell, C. (2001), "Overcoming cultural barriers to sharing knowledge", *Journal of Knowledge Management*, Vol. 5 No. 1, pp. 76-85.

McDougall, P.P., Oviatt, B.M. and Shrader, R.C. (2003), "A comparison of international and domestic new ventures", *Journal of International Entrepreneurship*, Vol. 1 No. 1, pp. 59-82.

Makela, K., Kalla, H.K. and Piekkari, R. (2007), "Interpersonal similarity as a driver of knowledge sharing within multinational corporations", *International Business Review*, Vol. 16 No. 1, pp. 1-22.

Marschan-Piekkari, R., Welch, D. and Welch, L. (1999), "In the shadow: the impact of language on structure, power, and communication in the multinational", *International Business Review*, Vol. 8 No. 4, pp. 421-440.

Meyerson, D. and Martin, J. (1987), "Cultural change: an integration of three different views", *Journal of Management Studies*, Vol. 24 No. 6, pp. 623-647.

Michailova, S. and Minbaeva, D.B. (2012), "Organizational values and knowledge sharing in multinational corporations: the Danisco case", *International Business Review*, Vol. 21 No. 1, pp. 59-70.

Miron, E., Erez, M. and Naveh, E. (2004), "Do personal characteristics and cultural values that promote innovation, quality, and efficiency compete with or complement each other?", *Journal of Organizational Behavior*, Vol. 25 No. 2, pp. 175-199.

Monteiro, L.F., Arvidsson, N. and Birkinshaw, J. (2008), "Knowledge flows within multinational corporations: explaining subsidiary isolation and its performance implications", *Organization Science*, Vol. 19 No. 1, pp. 90-107.

Moon, H., Quigley, N.R. and Marr, J.C. (2012), "How interpersonal motives explain the influence of organizational culture on organizational productivity, creativity, and adaptation: the ambidextrous interpersonal motives (AIM) model of organizational culture", *Organizational Psychology Review*, Vol. 2 No. 2, pp. 109-128.

Mowday, R. and Sutton, R. (1993), "Organizational behavior: linking individuals and groups to organizational contexts", *Annual Review of Psychology*, Vol. 44, pp. 195-229.

Nunnally, J.C. (1978), *Psychometric Theory*, McGraw-Hill, New York, NY.

Peterson, R. (1994), "A meta-analysis of Cronbach's coefficient alpha", *Journal of Consumer Research*, Vol. 21 No. 2, pp. 381-391.

Pettigrew, A.M. (1979), "On studying organizational culture", *Administrative Science Quarterly*, Vol. 24 No. 4, pp. 570-581.

Pierce, L. (2012), "Organizational structure and the limits of knowledge sharing: incentive conflict and agency in car leasing", *Management Science*, Vol. 58 No. 6, pp. 1106-1121.

Quinn, R.E. and McGrath, M.R. (1985), "Transformation of organizational cultures: a competing values perspective", in Frost, P.J., Moore, L.F., Louis, M.R., Lundberg, C.C. and Martin, J. (Eds), *Organizational Culture*, Sage Publications, Beverly Hills, CA, pp. 315-334.

Quinn, R.E. and Rohrbaugh, J. (1983), "A spatial model of effectiveness criteria: toward a competing values approach to organizational analysis", *Management Science*, Vol. 29 No. 3, pp. 363-377.

Riege, A. (2005), "Three-dozen knowledge-sharing barriers managers must consider", *Journal of Knowledge Management*, Vol. 9 No. 3, pp. 18-35.

Rulke, D.L. and Galaskiewicz, J. (2000), "Distribution of knowledge, group network structure, and group performance", *Management Science*, Vol. 46 No. 5, pp. 612-625.

Sackmann, S.A. and Friesl, M. (2007), "Exploring cultural impacts on knowledge sharing behavior in project teams – results from a simulation study", *Journal of Knowledge Management*, Vol. 11 No. 6, pp. 142-156.

Sapienza, H.J., Autio, E., George, G. and Zahra, S.A. (2006), "A capabilities perspective on the effects of early internationalization on firm survival and growth", *Academy of Management Review*, Vol. 31 No. 4, pp. 914-933.

Schein, E.H. (1990), "Organizational culture", *American Psychologist*, Vol. 45, pp. 109-119.

Schein, E.H. (2004), *Organisational Culture and Leadership*, Jossey-Bass, San Francisco, CA.

Selmer, J. and De Leon, C. (1996), "Parent cultural control through organizational acculturation: HCN employees learning new work values in foreign business subsidiaries", *Journal of Organizational Behavior*, Vol. 17 No. S1, pp. 557-572.

Silverthorne, C. (2004), "The impact of organizational culture and person-organization fit on organizational commitment and job satisfaction in Taiwan", *The Leadership & Organization Development Journal*, Vol. 25 No. 7, pp. 592-599.

Sine, W.D., Mitsuhashi, H. and Kirsch, D.A. (2006), "Revisiting Burns and Stalker: formal structure and new venture performance in emerging economic sectors", *Academy of Management Journal*, Vol. 49 No. 1, pp. 121-132.

Sørensen, J.B. (2002), "The strength of corporate culture and the reliability of firm performance", *Administrative Science Quarterly*, Vol. 47 No. 1, pp. 70-91.

Spector, P. (1994), "Using self-report questionnaires in OB research: a comment on the use of a controversial method", *Journal of Organizational Behavior*, Vol. 15 No. 5, pp. 385-392.

Storey, J. and Barnett, E. (2000), "Knowledge management initiatives: learning from failure", *Journal of Knowledge Management*, Vol. 4 No. 2, pp. 145-156.

Suppiah, V. and Sandhu, M.S. (2011), "Organizational culture's influence on tacit knowledge-sharing behaviour", *Journal of Knowledge Management*, Vol. 15 No. 3, pp. 462-477.

Szulanski, G. (1996), "Exploring internal stickiness: impediments to the transfer of best practice within the firm", *Strategic Management Journal*, Vol. 17 No. S2, pp. 27-43.

Tan, H.H. and Zhao, B. (2003), "Individual- and perceived contextual-level antecedents of individual technical information inquiry in organizations", *The Journal of Psychology*, Vol. 137 No. 6, pp. 597-621.

Teece, D.J. (1977), "Technology transfer by multinational firms: the resource cost of transferring technological know-how", *Economic Journal*, Vol. 87 No. 34, pp. 242-261.

Thite, M., Wilkinson, A. and Shah, D. (2012), "Internationalization and HRM strategies across subsidiaries in multinational corporations from emerging economies: a conceptual framework", *Journal of World Business*, Vol. 47 No. 2, pp. 251-258.

Vaara, E. and Tienari, J. (2011), "On the narrative construction of multinational corporations: an antenarrative analysis of legitimation and resistance in a cross-border merge", *Organization Science*, Vol. 22 No. 2, pp. 370-390.

Van den Hooff, B. and De Ridder, J.A. (2004), "Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing", *Journal of Knowledge Management*, Vol. 8 No. 6, pp. 117-130.

Van den Hooff, B. and Hendrix, L. (2004), "Eagerness and willingness to share: the relevance of different attitudes towards knowledge sharing", *Proceedings of the 5th European Conference on Organizational Knowledge, Learning and Capabilities*, *Innsbruck*.

Van den Hooff, B. and Huysman, M. (2009), "Managing knowledge sharing: emergent and engineering approaches", *Information & Management*, Vol. 46 No. 1, pp. 1-8.

Van den Hooff, B., Schouten, A.P. and Simonovski, S. (2012), "What one feels and what one knows: the influence of emotions on attitudes and intentions towards knowledge sharing", *Journal of Knowledge Management*, Vol. 16 No. 1, pp. 148-158.

Van den Hooff, B. and Van Weenen, F.D.L. (2004), "Committed to share: commitment and CMC use as antecedents of knowledge sharing", *Knowledge and Process Management*, Vol. 11 No. 1, pp. 13-24.

Wang, S. and Noe, R.A. (2010), "Knowledge sharing: a review and directions for future research", *Human Resource Management Review*, Vol. 20 No. 2, pp. 115-131.

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