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CREATING VALUE IN GLOBAL KNOWLEDGE NETWORKS

TRUST AS A STRATEGIC LEVER FOR COLLABORATION

This paper develops a hybrid framework for building value-creating trust in global knowledge collaboration. Drawing on multidisciplinary research and a five-year case study (Blade.org), we argue that neither interpersonal nor impersonal trust alone is sufficient in global contexts. Instead, sustainable collaboration emerges from the synergistic combination of social and institutional trust, cognition- and affect-based trust, generalized attitudes and specific behaviors, and reputational and action-based mechanisms. The study demonstrates how trust can be actively designed and managed across organizational and cultural boundaries to foster knowledge sharing, innovation, and value creation. We conclude by highlighting practices for enabling effective, trust-based collaboration in knowledge-intensive industries.

TRUST//KNOWLEDGE-BASED VIEW//VALUE CREATION//GLOBALIZATION//INNOVATION

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INTRODUCTION

Imagine a meeting of fiercely competing Finnish telecom operators, major TV channels, a terminal manufacturer, information and communication technology (ICT) integrators and public-sector officials. They were all sitting together around a table, all deeply engaged in an open discussion about the potential of a new business opportunity. They collaborated intensively to co-create a systemic innovation integrating telecom networks, terminals, applications, and content. None of them alone had the required knowledge and resources, but together they came up with a highly complex system founded on interoperability and best-of-breed specialized knowledge. These Finnish engineers had learned to trust each other – after all, they all had technical backgrounds, spoke the same native and professional languages, and had known each other for a long time.

Imagine now the same time, same country, but a different industry – forestry. Key actors from Finnish paper manufacturers and machine suppliers knew each other personally; they went to university together and subsequently collaborated actively on basic research and in industry associations. Managers from competing firms regularly visited each other's plants to learn about the latest developments, and then they went back to their own factories to improve their production lines and practices.

These scenes from the past are from the rather homogenous Finnish business context where engineers and managers collaborated thanks to mutual trust built on high social similarity, a shared past, and belief in a shared future. From the knowledge-based view of the firm (Argote et al., 2003; Grant, 1996; Kogut and Zander, 1992) Finnish firms, in general, were able to share knowledge efficiently and effectively, continuously innovating and co-creating complex, knowledge-based products and services. Generalized trust towards others and interpersonal trust anchored on perceived competencies and goodwill made flexible knowledge sharing possible. Trustworthy behavior, a value-based norm, was socially controlled through dense interpersonal networks. Managers entering the field were socialized into industry practices and learned from their colleagues about how to balance collaboration with competition. In addition, the shadow of the future – both new business opportunities and the risk of being excluded from business networks – engendered natural incentives for trustworthy behavior. And finally, trusted institutions, such as universities and legal systems, provided a platform for inter-organizational and interpersonal interaction and knowledge sharing.

Much of today's business collaboration occurs in a context quite different from what characterized a traditional local society: face-to-face interaction, social similarity, and familiarity. Globalization has challenged some of the well-established collaboration processes, offering less time and fewer opportunities for the incremental evolution of social and interpersonal trust nurtured by mutual recognition of competencies and goodwill. Social and physical distance, as well as transient and virtual relationships in international business, undermine the time and space needed for interpersonal trust to grow naturally. Consequently, in today's global business environment, firms and individuals rely increasingly on impersonal and institutional trust underpinned by contracts, certified processes, and reputable institutions (Bachmann, 2006, 2011; Giddens, 1990; Luhmann, 1979; Shapiro, 1987; Zucker, 1986). Rapid technological change and unexpected exogenous shocks have accelerated this shift towards more impersonal trust-building mechanisms (Lumineau et al., 2023; Malhotra, 2020).

Our paper is motivated by a practical management challenge: how to forge value-creating trust in global knowledge collaboration where trust-building mechanisms based on shared past, social similarity, and familiarity are unavailable. Previous studies have shown that trust is critical for inter-organizational knowledge collaboration (Dhanaraj et al., 2004; Zaheer et al., 1998). Yet, collaboration performance stemming from knowledge co-creation has specific requirements that may not come naturally in the global context. Inspired by existing research findings and validated by a five-year case example, we argue that trust in global knowledge collaboration consists of hybrid characteristics that combine various elements of trust: interpersonal trust typical of a local context and impersonal trust characteristic of global environments; a generalized trusting attitude and object-specific trusting behavior; cognitive and affect-based trust; and trust grounded on reputation and action.

The paper proceeds as follows. First, we briefly outline how trust is viewed from a psychological, sociological, and economic perspective and put forward several key observations on the role and nature of trust in organizations. We then assert a set of propositions to develop a framework for building value-creating trust. We illustrate our framework by incorporating a well-known case of knowledge-based collaboration among a large community of firms in the international computer server market, and we conclude with implications for research and practice.

ON THE NOTION OF TRUST IN KNOWLEDGE COLLABORATION

The knowledge-based view of the firm rests on the premise that knowledge is critical for competitiveness and that the nature of knowledge production has implications for how it is shared and used. Tacit knowledge is more difficult to transfer than explicit knowledge. The latter is neither personalized nor embedded in individuals and, therefore, requires less contextual understanding and socialization. Transferring tacit knowledge, on the other hand, typically requires personal interaction (Argote et al., 2003; Nonaka and Takeuchi, 1995; Polanyi, 1962; Szulanski, 2003; Uzzi, 1996; von Krogh et al., 2000). Because different individuals and organizations possess specialized knowledge developed through different experiences in different contexts, a specific time and space are needed for people to connect and construct interpersonal trust in exchange relationships (Blomqvist, 1997; Miles et al., 2000, 2009). As psychologists, sociologists, and economists have all pointed out, from their respective frames of reference, trust serves as an effective lubricant in managing uncertainty, vulnerability, complexity, information asymmetry, and related risks in exchange.

Researchers taking a psychological approach have focused on individuals, with particular interest in variations in human propensity (disposition) to trust as well as the attributes of trustworthy people (Kramer, 1999; Lewis and Weigert, 1985; Mayer et al., 1995; Rotter, 1967, 1971). At the individual level, this trusting attitude or propensity to trust is both a trait and a state, meaning that it is partly inherited (Reimann et al. 2017) but also learned from early childhood encounters about whom to trust (Erikson, 1963; Hardin, 1992). The capacity to trust and general optimism about the trustworthiness of others provide opportunities for potentially beneficial interaction and enrich the social learning process about the trustworthiness of other people and institutions (Hardin, 1992). A generalized trusting attitude and positive human assumptions enhance the actor's willingness to take risks and interact socially (Cook et al., 2005; Rotter, 1967).

For sociologists, trust has long been a central research topic (Blau, 1964; Luhmann, 1979; Schilke et al., 2023). Sociologists focus on the collective level of analysis and see economic activity as socially embedded (Granovetter, 1985). They argue for the part trust plays in validating all interpersonal exchange and coordination in collectives (e.g., communities and societies) (Bachmann, 2006; Fukyama, 1995; Granovetter, 1985; Luhmann, 1979; Portes, 1998; Zucker, 1986). Trust is seen as an antecedent for reciprocity (Hayashi et al., 1999) and collective action (Ostrom, 1998; Schilke et al., 2023). In economics, trust has been shown to lower exchange costs and provide new opportunities; in a similar vein,trust reduces transaction costs such as search, negotiation, contracting, and monitoring (Dyer and Chu, 2003, 2010). Trust may also increase exchange benefits; for example, an actor's reputation for trustworthiness may provide economic opportunities (Axelrod, 1984; Blomqvist et al., 2002; Williamson, 1993). In addition, formal governance through contracting is seen to mitigate potential opportunistic action and functions as an impersonal substitute for experientially based trust (Blomqvist et al., 2005; Dyer and Chu, 2000).

For years, researchers have been interested in the role and nature of inter-organizational trust and its antecedents, outcomes, and development (Seppänen et al., 2007). In this paper, we adopt the conceptualization by Blomqvist (2002), and later operationalized by Seppänen (2008), who studied trust and its effect on inter-firm collaboration performance from a dyadic perspective. Accordingly, we define trustworthiness as an actor's expectation of the competence, goodwill, and identity of both the counterpart persons and the counterpart company. Compared to seminal conceptions of trustworthiness that emphasize vulnerability, expectations and risk (Barney and Hansen, 1994; Meyerson et al., 1996;

Rousseau et al., 1998), our definition a) underlines value creation in knowledge collaboration by bringing in the expectation of competence and b) incorporates interpersonal and organizational sources of trust.

In knowledge collaboration, the relevant *competence* (technical knowledge, skills, and know-how) is a necessary antecedent to and basis for trust, as access to complementary knowledge and resources is a motive behind cooperation (Rousseau et al., 1998). Signs of *goodwill* (moral responsibility and positive intentions toward others) are required for the trusting party to accept risk and take up a potentially vulnerable position in knowledge sharing (Mayer et al., 1995). *Identity* refers to an actor's ability to understand and use others as referents. (On self-reference, see Luhmann, 1979.) At the firm level, a strong identity is depicted in corporate values and strategy. These different dimensions of trustworthiness (competence, goodwill, and identity) are seen as additive and well-suited for studying trust both at the interpersonal and inter-organizational levels (Blomqvist, 2002; Seppänen, 2008; Seppänen et al., 2007). Next, we discuss various trust-building mechanisms in global knowledge collaboration.

SOCIAL AND IMPERSONAL TRUST REFERENTS IN INTER-FIRM RELATIONSHIPS

Inter-firm trust consists of social, interpersonal, and impersonal trust elements (Seppänen et al., 2007). It operates at multiple levels of analysis: the trustor's impersonal trust in the other organization and its structures and processes, and social trust in interpersonal relationships between people who act as boundary-spanners in inter-organizational relationships (Currall and Inkpen, 2002). *Interpersonal trust* is essential for knowledge sharing, as knowledge is personal and sharing it can make one vulnerable. To be willing to share valuable personal knowledge, focal individuals must develop positive expectations about others (Blomqvist and Cook, 2018). On the other hand, to be willing to use another's knowledge, they must be able to trust their own capability (Holste and Fields, 2010). Thus, interpersonal trust is critical for tacit knowledge sharing and use (Becerra et al., 2008; Chowdbury, 2005; Holste and Fields, 2010).

Interpersonal trust is also important for the evolution of inter-firm trust as organizational relationships often evolve from interpersonal relationships (Blomqvist, 2005; Ring and Van de Ven, 1994, Schilke and Cook, 2013). However, the link between interpersonal and inter-firm trust also works the other way around. When individuals working in inter-firm settings find impersonal trust referents related to another organization trustworthy, their trust may transfer to interpersonal trust in the individuals who they interact with. Instead of human referents, these impersonal trust referents are products, services, and processes (Dyer and Chu, 2003), culture (Dyer and Chu, 2010), routines (Zollo et al., 2002), and institutionalized practices (Zaheer and Zaheer, 2006). Therefore, impersonal trust is built by trustworthiness cues accruing from impersonal referents instead of people (Kosonen et al., 2010).

Dyer and Chu (2000) described trust in inter-organizational relationships noting that "the trust orientation that individuals in one firm maintain toward a trading partner is not based on personal relationships, but rather on a set of institutionalized processes and routines employed at the partner organization." In similar fashion, according to Luhmann (1979) system trust is when the trustor "basically assumes that a system is functioning and places his trust in that function, not in people." When assessing potential partner company trustworthiness, individuals may evaluate a combination of interpersonal and impersonal referents.

COGNITION-BASED AND AFFECT-BASED TRUST IN KNOWLEDGE COLLABORATION

The cognitive and affective foundations of trust are well established in the literature (Legood et al., 2023). The concepts that capture cognitive and affect-based trust originate from psychology, reflecting components of human thought and experience. Cognition refers to "all aspects of knowing and awareness including processes such as perception, reasoning, and judgement" (APA, 2020). *Cognition-based trust* is grounded in rational reasoning and related evidence for trust (Lewis and Weigert, 1985). In inter-firm relationships, it reflects trust in the other party's competence, supports positive analytical evaluation of the other party's trustworthiness, and can affect knowledge collaboration performance (Henttonen et al. 2020). As for the latter, a high level of cognitive-based trust enhances knowledge-seeking from trusted persons (Chowdbury, 2005; Holste and Fields, 2010). When partners exhibit cognition-based trust in each other, they are willing to invest in and use each other's knowledge.

Affect-based trust stems from the personal values and emotional ties linking individuals. It involves care and concern (McAllister, 1995). Positive affect has been shown to lead to a better exchange of information, extra-role behavior, more cooperative strategies, and stronger trust (Elfenbein, 2023). It also fuels creativity by facilitating divergent thinking and the generation of valuable new ideas (Chua et al., 2012). Affect-based trust is critical to knowledge sharing, whereas cognitive trust has been found to be more salient in knowledge use (Holste and Fields, 2010).

Individuals can use cognition- and affect-based trust cues in inter-firm relationships when evaluating social and impersonal trust referents. Cognitive trust is constituted on rational grounds – the other firm's knowledge resources and complementary capabilities. Individuals getting to know each other may build affect-based relationships. When interacting, they may even grow fond of the partner firm culture and brand, leading to affect-based trust in the impersonal trust referents. But this type of trust takes more time to develop than cognitive trust in relationships (Lewicki and Bunker, 1995). The foundations of cognition-based trust are formal roles, role-prescribed behavior, and "enlightened self-interest" whereas affect-based trust is founded on extra-role and person-specific behavior as well as the "virtue of relationships" (McAllister 1995; see also Kramer, 1999; Lewis and Weigert, 1985).

GENERALIZED AND SPECIFIC TRUST ACROSS CULTURES

A generalized willingness to trust others is partly a personality trait (Rotter, 1971), learned through life experiences that make an individual generally more (or less) trusting and having a higher (or lower) capacity to trust others (Baer et al., 2018; Hardin, 2017; Reimann et al., 2017; Van Lange, 2015). The nature of trust varies across cultures (Dietz et al., 2010; Doney et al., 1997; Fukyama, 1995; Huff and Kelley, 2003; Zaheer and Zaheer, 2006). Indeed, cultural norms, values, and the nature of institutions in each society impact the scope of trust and related behavior (Dietz et al., 2010; Dyer and Chu, 2010; Ferrin and Gillespie, 2010; Uslaner, 2010).

Higher generalized trust in others is common in Scandinavia (Rothstein and Stolle, 2003), where the social conditions for trusting are favorable. This being the case, individuals are more willing to trust others they do not know, so they start new relationships with a trusting attitude. However, this propensity or disposition to trust varies according to personality and life experiences. High generalized trust has been explained by more equitable income distribution and low levels of perceived corruption in society (Uslaner, 2010), and institutional trust-building mechanisms such as legal safeguards and social structures (Parkhe, 1998). Generalized trust in others is valuable as it engenders openness to new people and situations (Hardin, 2017; Van Lange, 2015). Compared to Scandinavia, generalized trust is considerably lower in countries like Turkey, Brazil, and China (World Values Survey).

The different nature of trust across countries is usually explained by cultural differences, especially between collectivist and individualistic cultures (Huff and Kelley, 2005). In collectivist cultures, trust and loyalty evolve naturally among in-group members but not between insiders and outsiders. For example, particularistic relationships with specific others nurture trust in Russia (Michailova and Husted, 2003). Or in China, trust that is anchored to close interpersonal relationships, mutual affect, and opportunity (*guanxi*) carries more weight than impersonal trust relationships tied to trusted institutions (Buckley et al., 2006; Child, 2001; Child and Möllering, 2003). Thus, in collectivist cultures specific interpersonal relationships are critical for business relationships and also function as an essential mechanism in developing inter-firm trust in China (Boisot and Child, 1996; Child and Möllering, 2003; Huang et al., 2008; Jukka et al. 2017) and Russia (Michailova and Worm, 2003). In contrast, in more individualistic countries (e.g., Germany, Finland) generalized trust and impersonal trust-building mechanisms can be relatively more important for constructing business relationships (Jukka et al., 2017; Lane, 1998; Lane and Bachmann, 1996).

TRUST AS ATTITUDE, DECISION, AND BEHAVIOR

Much of the literature on trust examines the development of trust as incremental, growing through gradual investments by both parties (Lewicki and Bunker, 1995; Ring, 2000; van de Ven, 1976). In this process, actors' positive reputation signals trustworthiness; in densely connected networks, it can pay off, as this information may provide new business opportunities (Barney and Hansen, 1994; Burt, 2000; Gulati, 1995). This implies that in global knowledge collaboration, a trusting attitude and a trustworthy reputation at individual and organizational levels may become a threshold condition for exchange relationships as well as a source of firm performance (Burt and Knez, 1996; Kollock, 1994). However, while attitude and reputation are vital, there have been calls for a more active approach to trust (Adler, 2001; Child and Möllering, 2003; Williams, 2007). Möllering (2006) and Li (2008) argued that scholars should study behavior instead of focusing only on attitudes (see also Dietz and den Hartog, 2005; McEvily and Tortoriello, 2010). Trust-implying actions and relation-specific investments signal an actor's willingness to trust and commit to the relationship in question (Axelrod, 1984; Barney and Hansen, 1994; Currall and Judge, 1995; Gillespie and Dietz, 2009; Lewis and Weigert, 1985; McEvily and Zaheer, 2006). Active trusting behavior is also a relatively more meaningful signal in global (Cohen and Fields, 2000; Cullen et al., 2000) and virtual contexts for trust to emerge (Jarvenpaa and Leidner, 1999; Kasper-Fuehrer and Ashkanasy, 2001; Meyerson et al., 1996). The reason is that participants do not have the familiarity, social similarity, and often neither the time or the opportunity for the continuous social interaction that fosters the incremental evolution of trust in local contexts.

FRAMEWORK FOR BUILDING VALUE-CREATING TRUST

Our discussion of the nature of trust, including its major components, can be broadly summarized as shown in Table 1. To asemble our hybrid framework of value-creating inter-organizational trust, we present four propositions that combine key elements of interpersonal and inter-organizational trust.

TABLE 1. VALUE-CREATING HYBRID CHARACTERISTICS OF TRUST IN GLOBAL KNOWLEDGE COLLABORATION

			Trust characteristics
Forms of trust	Social	Impersonal	Social and impersonal
Bases of trust	Affect-based	Cognitive	Affect- and cognition-based
Sources of trust	Generalized	Specific	Generalized trusting attitude and specific behavior
Development of trust	Reputational	Action-based	Reputation- and action-based

FORMS OF TRUST: SOCIAL AND IMPERSONAL

Social and interpersonal trust is critical for sharing and using personal knowledge for value creation in knowledge collaboration. At the same time, it is insufficient and not always available for global collaboration. In global knowledge collaborations, the interacting individuals may not have a shared past or a shadow of the future; they work from a distance or are regularly transferred to new positions and locations. Therefore, interpersonal trust is limited and too fragile for global knowledge interaction, where one cannot know all relevant individuals personally. Frequently changing and globally interacting organizations cannot rely on interpersonal trust alone; instead they require complementary forms of trust to enhance knowledge sharing among their employees. Therefore, we argue that for value-creating trust, interpersonal trust must be reinforced by impersonal forms of trust (e.g., trust in firm strategy, brand, contracts, certifications, processes, culture, and structures) (Blomqvist et al. 2005; Dyer and Chu, 2010; Shapiro, 1987; Zucker, 1986).

> *Proposition 1: A positive synergistic effect on global knowledge collaboration springs only from the* combination *of interpersonal and impersonal trust, not from either one alone.*

Bases of trust: cognition-based and affect-based

Cognition-based trust can be characterized as analytical and rational when the trustor evaluates the trustee's competence, professional track record, and level of relevant knowledge (Henttonen et al., 2020; Lewis and Weigert, 1985). Managers expressing high affect-based trust in peers tend to cooperate proactively and productively, especially in complex situations involving reciprocal interdependence (McAllister, 1995). Affect-based trust also supports an actor's potential vulnerability, which arises from sharing personal knowledge (Holste and Fields, 2010). Therefore, this type of trust seems especially suitable for complex knowledge collaboration requiring tacit knowledge and intrinsic motivation (Chowdhury, 2005). However, once affect-based trust has been developed, it may persist even if the situation changes and there is no longer a cognitive basis or "a good reason" for trust (McAllister, 1995; Wicks et al., 1999). This means that even if affect-based trust could be stronger in its potential for tacit knowledge-sharing collaboration, it is also riskier if it is not combined with cognition-based analytical and evaluative trust in global knowledge collaboration.

We suggest that cognitive and affect-based trust are both vital for value-creating trust in global knowledge collaboration (Griffith, 2002). A cognition-based evaluation of the other actor's trustworthiness (competence, goodwill, and identity) provides valuable information for analytical and rational trust. The role of affect-based trust is accentuated in knowledge processes requiring high personal vulnerability, intrinsic motivation, creative idea generation, and personalized tacit knowledge interaction.

> *Proposition 2: A positive synergistic effect on global knowledge collaboration springs only from the combination of affect-based and cognition-based trust, not from either one alone.*

Sources of trust: a generalized trusting attitude and object-specific trusting behavior

A *generalized trusting* attitude can be a source of value creation in global knowledge interaction, where non-redundant knowledge and resources can be gained through weak ties (i.e., relationships with new and distant actors instead of those in the closed network) (Burt 1992; Granovetter, 1973, 1985; Nahapiet and Ghoshal, 1998). A generalized trusting attitude is also critical in initiating new relationships, and the benefits of a trusting attitude (or culture) apply to individuals and organizations. Through an economics lens, individuals and firms with generalized trusting attitudes and ability to build trust may enjoy decreased transaction costs and increased transaction benefits due to their willingness to collaborate with complementary strategic partners (Blomqvist et al., 2002). Game-theoretical experiments show that starting by collaborating pays off (Axelrod, 1984). Thus, a generalized trusting attitude is a necessary precondition that functions as an appraisal heuristic enabling proactive sense-making of potential collaboration opportunities.

In the global arena, however, generalized trust can be risky. The capacity to trust is socially learned, so generalized trust may be profitable in a high-trust context but not necessarily in a low-trust one (Cook et al., 2005). Therefore, a generalized trusting attitude alone is not sufficient for value creation. Similarly, with regard to *particularistic trust*, typical of China and Russia (where only specific individuals are trusted) this cannot provide value for global knowledge collaboration (Fukyama, 1995; Li, 2008; Michailova and Hutchings, 2006). First, by trusting only in-group members or those with social similarities, organizations may miss opportunities to use the non-redundant, specialized, and dispersed knowledge vital for global knowledge collaboration. Second, limiting trust in this way may result in the failure to fully exploit potential resources; this could inhibit firm growth, innovation, and organizational renewal (Fukyama, 1995; Kern, 1998; Uzzi and Spiro, 2005). Third, the motives and behavior of individuals and organizations may vary depending on the situation and context (Rocha and Ghoshal, 2006), so their trustworthiness (capability and goodwill) is not continuously warranted. In light of these considerations, any actual trusting behavior (i.e., risk-taking decisions and actions such as disclosing sensitive information) should always be specific to the situation, task, and object of trust (Blomqvist, 2002; Hardin, 2002; Lewicki et al., 1998). Without object-specific trusting behavior, a generalized trusting attitude alone may lead to undervaluing the potential trustworthiness of a partner. (On trust processes combining attitude and behavior, see Dietz and den Hartog, 2006; McEvily et al., 2003.) The above arguments lead us to our next proposition.

Proposition 3: A positive synergistic effect on global knowledge collaboration springs only from the combination of generalized and object-specific trust, not from either one alone.

Development of trust: reputational and action-based

Reputation has become increasingly essential in technology-enabled global networks, where information about performance is carried effectively across the globe (Cairncross, 2000). A reputation for trustworthiness lowers transaction costs (search and monitoring) and provides new business opportunities. In R&D and standardization, for example, it means that more open knowledge interaction and standard setting for basic technology research are possible (Blomqvist et al., 2007; Ritala et al., 2009).

Instead of reactive behavior and the gradual evolution of trust, global knowledge collaboration requires active and even quickly built "fast trust" (Blomqvist, 2002, 2005). (On swift trust, see Meyerson et al., 1996; on trust in virtual contexts see Blomqvist and Cook, 2018; Jarvenpaa and Leidner, 1999.) For example, the performance-based trust in Silicon Valley does not originate in shared history but rather in reputation and performance generated by the most recent action (Cohen and Fields, 2000; Kenney, 2000). Action-based trust is open to outsiders and can be extended to other cultures, as well as people with a range of backgrounds and new ideas.

In the contemporary business environment, new opportunities may appear and disappear quickly without enough time for the incremental development of inter-organizational trust and related mechanisms (e.g., contracting). In this context, the ability to secure trust fast, even as a "risky investment" (Bachmann, 2006; Luhmann, 1979), can provide profitable new business opportunities (Blomqvist, 2002, 2005). Action-based trust is also critical in global knowledge collaborations where parties may easily lose their reputation if they are unable to react quickly to potential conflicts and risky situations. For trust to create value, a trustor must actively and analytically evaluate the specific trustee's trustworthiness through the dimensions of trust (capability, goodwill, and identity) (Blomqvist, 2002; Seppänen, 2008). The ability of actors to build trust actively and quickly complements their reputation for trustworthiness.

Proposition 4: A positive synergistic effect on global knowledge collaboration springs only from the combination of reputational and experientially based trust, not from either one alone.

Our propositions are summarized in Figure 1, which depicts a comprehensive framework for building value-creating trust in global knowledge collaboration. The Antecedents box shows the characteristics that individuals and organizations must bring to the collaborative relationship for it to be effective. In the box on Relationship Dynamics, we indicate how both interpersonal and inter-organizational behaviors can be combined to conduct collaborative projects. In the Outcomes box, we list the major benefits that can accrue to organizations that hone the ability to effectively collaborate with other organizations, particularly in knowledge-intensive industries.

Next, we present the case of Blade.org to illustrate how interpersonal and inter-organizational trust developed in an international collaborative community of firms.

TRUST DYNAMICS IN BLADE.ORG

Blade.org, a collaborative community of firms in the international computer server market, offers a rich illustration of how trust evolves in global knowledge collaboration. Blade.org was established in 2006 by IBM and seven other founding firms to support the IBM BladeCenter platform (Fjeldstad et al., 2012; Snow et al., 2011). IBM had invented blade technology, but rather than trying to develop products and services (or "solutions") by itself, company leaders chose to form a community of firms that would work together to accelerate the development and commercialization of blade-based solutions. IBM and the other founding firms initially invited 27 "complementor" companies in the computer server market to join Blade.org. They were then asked to invite a second wave of firms, which resulted in Blade.org having 70 organizations that collectively represented the myriad capabilities required to come up with solutions for the blade server market. (Later, many partners asked their leading customers to join Blade.org too, resulting in a peak membership of more than 200 firms.)

FIGURE 1. FRAMEWORK FOR BUILDING VALUE-CREATING TRUST IN GLOBAL KNOWLEDGE COLLABORATION

ANTECEDENTS

Individual level
- Technical competence
- Collaborative values and capabilities
- Goodwill (moral responsibility and positive intentions towards others)
- Identity (ability to understand and use others as a referent)
- Integrity

Organizational level
- Firm reputation
- Goodwill
- Collaboration track record

→

RELATIONSHIP DYNAMICS

Interpersonal
- Investments in and exercises for boundary-spanning collaborators
- Use of both social and impersonal forms of trust
- Use of both cognition-based and affect-based trust
- Use of generalized and specific sources of trust
- Use of both reputational and experientially based active trust to strengthen collaborative relationships

Inter-organizational
- Selection and training of individuals who will be collaborators
- Provision of supporting mechanisms (testing equipment, websites, physical and virtual meeting places, team building activities, etc.)

→

OUTCOMES
- High-performance knowledge collaboration
- Increased business opportunities
- Improved collaboration capacity

The Blade.org community had nine technical committees, all staffed by volunteers from the member firms, to deal with functions such as technology, solutions architecture, compliance and interoperability, power and cooling, and so on. The committees assisted the member firms on their innovation projects, as a typical solution was a complex, expensive, knowledge-based product. Any Blade.org participant was free to approach any other member firm(s) to propose an innovation project, and most projects were carried out by two to four companies. Finally, a Principal Office was set up that provided infrastructure, administrative services, and strategic initiatives to operate and expand the community. These services were critical in building impersonal trust to cultivate the global community's knowledge collaboration. In its first 18 months of operation, Blade.org firms developed more than 60 solutions, a testimony to the overall effectiveness of this collaborative community.

At the interpersonal level, trust emerged through repeated interaction with Blade.org's technical and solutions committees. All the member firms' representatives who had self-selected into Blade.org – dubbed "Blade people" – did so because of their interest and ability with regard to collaboration. The committee structure enabled frequent, task-oriented interactions between committee members and firm representatives such that participants could evaluate each other's competence and reliability. Over time, these interactions fostered interpersonal trust grounded in perceptions of ability, benevolence, and integrity (Mayer et al., 1995). Further, interpersonal relationships acted as conduits for knowledge sharing and developing inter-organizational trust on innovation projects. As successful collaborative experiences mounted across the community of firms, they created a reputation for trustworthiness and acted as a safeguard against opportunism, reinforcing the participants' active behavior and the credibility of the collaboration process. This dynamic reflects the dual role of interpersonal and organizational mechanisms in enabling collaboration to flourish.

The Blade.org case offers an empirically grounded illustration of how trust can be intentionally cultivated and sustained in an internationally distributed, multi-firm community. The progression from interpersonal to inter-organizational trust was not incidental, but instead emerged from deliberate design choices at the individual, organization, and community levels. A generalized trusting attitude, together with specific trusting behavior, engendered a reputation for trustworthiness, encouraging active collaboration. Successful knowledge-based collaboration revolves around competent individuals who behave with integrity, firms that have a reputation and track record of sophisticated collaborative behavior, and supporting mechanisms that allow trust to emerge organically among actors who engage with one another without hierarchical control.

At the individual level, the technical expertise, adherence to explicit norms, ethical standards, and professional values, as well as perceived genuine care for mutual well-being and support, enhanced the ability, benevolence, integrity, and identity dimensions for trustworthiness. At the organizational level, trust took root thanks to the resource complementarity and reputation for fair and successful past collaboration of participating companies. At the community level, the formal mechanisms put in place to facilitate collaboration and to reduce risk and potential opportunism were critical in establishing impersonal trust. Trust was actively forged by structured forums (e.g., committees, joint projects), allowing mutual evaluation and trust calibration. Role clarity, role enactment, and clear responsibilities enhanced predictability by facilitating "swift trust." In addition, shared norms nurtured social identification and the emergence of a group identity, fostering relational trust through psychological safety and cohesion. Reciprocal behavior and mutual adjustment were also essential in reinforcing loops of reliable actions leading to deepened relational bonds. These trust-building structures and processes encouraged collaboration, as individuals were willing to take risks and proactively share their tacit knowledge and private information. At the Blade.org community level, this led to accelerated innovation cycles and commercialization.

CONCLUSIONS AND IMPLICATIONS FOR RESEARCH AND PRACTICE

We integrated multi-disciplinary research on trust to introduce a more holistic approach to understanding trust in global knowledge collaboration among firms. We conceptualized trust as consisting of competence, goodwill, and identity dimensions, which we argue are complementary in establishing the trustworthiness needed for value-creating trust. As regards this type of trust, we then argued for a hybrid form in knowledge collaboration and developed propositions concerning its "both/and" nature. We proposed, first, that neither social nor impersonal trust alone is sufficient for value creation in global knowledge collaboration. In fact, interpersonal social interaction is required for tacit knowledge sharing and co-creating new knowledge. When complemented with structures and processes that support impersonal trust, the resulting combination is more suitable for global knowledge collaboration. Second, we argued that value-creating trust consists of a generalized trusting attitude that provides information about opportunities, while object-specific trusting behavior leads to analytically evaluating disclosure or commitments before taking a vulnerable position; this in turn limits the inherent risks in global knowledge collaboration. Third, we highlighted the fact that the interplay of affect-based and cognition-based trust is a prerequisite to knowledge sharing and use. Specifically, the trustor has to get to know the other party and trust in their goodwill to be open to sharing knowledge; in addition, to use the other's knowledge, the trustor must make a cognitive analytical evaluation of the trustee's competence. Finally, in global knowledge collaboration, reputation is a potential source of new opportunities and value creation that can be realized by action.

SCHOLARLY CONTRIBUTION

Our conceptual discussion advances research on trust in the fields of knowledge management and international business; in both of these contexts, value creation through global knowledge collaboration is a topic of interest. Our contribution to the ongoing academic conversation is to integrate research on the nature and dynamics of trust into a hybrid framework applicable to global knowledge collaboration. Our approach shows how creating value in global knowledge collaboration is a "both/and" rather than "either/or" approach, well-suited for resolving tensions in complex inter-firm relationships.

We emphasize that our trust framework most aptly applies to situations involving collaboration, not cooperation. In multi-firm relationships, there is a difference between the two (Miles et al., 2005). Cooperation, quite simply, is working together for a common purpose. In most cases, cooperation involves negotiating and implementing known solutions. Each party in a cooperative undertaking is serving its own interests and expects to receive rewards for taking part in the joint endeavour. Collaboration is something else. It is more about working together to create solutions that do not exist. As illustrated in the Blade.org case, the parties to each innovation project contribute their respective knowledge and skills in the quest for a new, commercially viable solution. Specific goals and payoffs cannot be negotiated in advance because the parties do not know exactly where their joint efforts will lead. In knowledge-intensive industries where products and services are complex and continually evolving, collaboration is a must, not an option.

PRACTICAL IMPLICATIONS

Our framework for building value-creating inter-organizational trust suggests several things that managers should consider before engaging in global knowledge collaboration. When initiating new business relationships, they should realize that their business partners from different backgrounds may have different attitudes towards trust, varying from a generalized trusting attitude to a willingness to trust only particular others. Openness to newcomers, combined with object-specific trusting behavior, is likely to provide more opportunities and better results.

When managing business relationships, both interpersonal and impersonal trust matter. It is essential to share information about the company's products, processes and strategy, but interpersonal relationships are consequential as well. Wise managers invest time in forming trusting relationships. By getting to know the key people working at the interface of collaborating organizations, managers learn valuable information which is helpful for drawing up contracts that work for both parties. And when there are conflicting issues to be resolved, it is faster, cheaper, and usually more effective to discuss differences among trusted individuals rather than turning to lawyers.

Knowledge collaboration requires both cognitive and affect-based trust. For individuals to be willing to use the other party's knowledge, they need to have a rational basis for trusting the capabilities, information, and opinions of their partners. To be willing to share their valuable expert knowledge, they need to feel safe and have positive feelings towards partners. Positive affect also allows people to see those who are different from themselves from a broader perspective, eliciting appreciation for potentially complementary features, instead of a singular focus on diversity. Positive feelings matter in business collaboration, whether it's about knowledge sharing, getting to know new partners, or solving conflicts among parties who know each other well.

Firms that invest in both interpersonal and impersonal trust can build a reputation as a trustworthy company. Reputation brings new opportunities in knowledge-intensive industries, yet those opportunities can be realized only by action. This means that the reputation for trustworthiness must be complemented by organization-wide trustworthy behavior.

To improve a firm's capacity for global knowledge collaboration, we recommend that organization designers focus on three areas: (1) the individuals who will be asked to collaborate with their counterparts at other firms, (2) the setting in which the collaboration will occur, and (3) the mechanisms that will be used to support interpersonal and inter-organizational activities. People who are likely to be good collaborators are the ones who would self-select into the position rather than be assigned to it. They enjoy working with others in teams; they are not afraid of being vulnerable and taking risks; they have a reputation for integrity and a professional track record; and they genuinely enjoy creating something new with other competent people. Good collaborators are intrinsically motivated: they enjoy the process for the sake of collaborating. As we saw in the Blade.org community, "Blade people" volunteered to represent their companies on innovation projects.

Collaborators need settings that allow them to work efficiently with each other. At Blade.org, meetings were held in various ways: face-to-face, virtually, or at one firm or another, perhaps on a rotating basis. Many project teams set up their own website, complete with chatrooms and storyboards that recorded decisions and monitored progress. Some teams used commercial collaboration software to interact. Although team members also performed regular duties at their respective companies, they were given complete freedom to work on blade projects and were empowered to act on behalf of their organizations. Most teams made their own decisions on how to foster their interpersonal relationships, including offsite team-building activities designed to help team members get to know each other and learn how to work together. In short, collaborators need a physical venue and emotional space they can call their own. Under such conditions, they engage in collaborative activities with minimal control from their parent companies.

When collaborators are crossing multiple firm boundaries (different corporate cultures, different performance expectations, different financial practices, etc.), they need a "platform" that makes their work possible. The philosophy of Blade.org was to provide a work environment that fully supported the innovation projects. Blade.org had no management hierarchy that authorized or evaluated innovation projects; member firms were free to initiate any project they desired, but they had to find their own funding and other resources. Blade.org organized the technical committees that helped teams engineer their solutions. In addition, a community website archived all solutions as they were being developed so that they were interoperable, and the Principal Office (staffed by approximately 20 IBM employees) worked on community-wide initiatives requested by the member firms.

In conclusion, the hybrid nature of value-creating trust can be achieved when individuals and organizations carefully reflect and analyze their trust-related attitudes, beliefs, and behaviors in a global context. At the firm level, value-creating trust can be established when strategic managers, business development managers, and human resource managers collaborate to design organizational trust-building and evaluation processes. Value-creating trust for global knowledge collaboration is underpinned by a philosophy and values that can be addressed in personnel selection, training seminars, and role modelling among managers and employees. Firms can hone the competence of their personnel by organizing workshops and other learning experiences on cultural, tactical, and legal issues related to collaboration, so that neither the collaboration as such nor the collaborating organizations are disadvantaged. Firms that devise the mechanisms to build value-creating trust in global knowledge collaboration will be more likely to succeed in today's dynamic, interdependent, and global knowledge economy.

MANAGERIAL IMPACT FACTOR

- **Design hybrid trust systems**: Combine interpersonal and institutional mechanisms to sustain collaboration across global and virtual contexts.
- **Balance cognition and emotion**: Foster both analytical evaluation (competence) and affective bonds (goodwill) to enhance knowledge sharing.
- **Promote generalized openness**: Encourage a trusting attitude toward diverse partners while maintaining context-specific risk assessment.
- **Build and act on reputation**: Strengthen organizational credibility through consistent, trustworthy behavior and transparent performance.
- **Empower boundary-spanners**: Select and train individuals skilled in cross-cultural communication and collaborative problem-solving.
- **Create enabling structures**: Establish platforms, forums, and routines that institutionalize trust and facilitate rapid, reliable cooperation.

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