



## The impacts of social trust on open and closed B2B e-commerce: A Europe-based study



Wen Guang Qu<sup>a</sup>, Alain Pinsonneault<sup>b</sup>, Daniel Tomiuk<sup>c</sup>, Shaoqing Wang<sup>d</sup>, Yuan Liu<sup>e,\*</sup>

<sup>a</sup> School of Management, Zhejiang University, 866 Yuhangtang Road, Hangzhou 310058, China

<sup>b</sup> Desautels Faculty of Management, McGill University, 1001 Sherbrooke West, Montreal, QC, Canada H3A 1G5

<sup>c</sup> University of Quebec at Montreal, 405 Sainte-Catherine East, Montreal, QC, Canada H2L 2C4

<sup>d</sup> School of Management, Zhejiang University, 866 Yuhangtang Road, Hangzhou 310058, China

<sup>e</sup> School of Management, Zhejiang University, 866 Yuhangtang Road, Hangzhou 310058, China

### ARTICLE INFO

#### Article history:

Received 27 September 2012

Received in revised form 29 June 2014

Accepted 2 July 2014

Available online 11 July 2014

#### Keywords:

Social trust

Open B2B e-commerce

Closed B2B e-commerce

IOS standards

Generalized trust

### ABSTRACT

The increasing popularity of open standards in B2B e-commerce demands more research on generalized trust. This study investigates how a country's social trust affects the use of open and closed B2B e-commerce. The analysis based on data from 27 European and related countries shows that social trust in a country promotes the use of open B2B e-commerce, but it impedes the use of closed B2B e-commerce. In addition, social trust negatively moderates the relationship between firm-level IT experience and closed B2B e-commerce. Our results highlight the important role of social trust in B2B e-commerce, especially in open e-commerce.

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## 1. Introduction

Nowadays, the competitive unit in many industries has changed from an individual firm to a whole supply chain [38]. Managing resources effectively across partner firms has become paramount for the success of a supply chain. The role of information technology (IT) in improving supply chains by facilitating inter-organizational transactions and collaboration has been emphasized in the literature [8,58]. Studies show that firm ability in conducting transaction and collaboration with business partners over electronic channels (i.e., B2B e-commerce) can have a strategic impact on firm performance [64,66].

The main IT application used in the context of inter-organizational exchange is inter-organizational systems (IOS), which can be categorized into two types: open standards-based IOS (open IOS) and closed standards-based IOS (closed IOS) [55,72]. If a standard is developed and available only to a closed set of firms that requires a private communication platform, it is considered to be a closed

standard (e.g., a proprietary system between a manufacturing firm and its suppliers). On the contrary, open standard is available to the public and uses public communication platforms and software (e.g., RosettaNet and ebXML) [56,72]. Nowadays, with the fast development of open standards (e.g., RossetaNet in the electronics industry), firms are increasingly deploying open IOS [2].

Trust has been identified as a key factor in promoting B2B e-commerce [21,30,37,40,61,62,71]. For instance, Zaheer and Venkatraman [71] investigate the electronic linkages in the insurance industry and find that insurance agencies' trust in a carrier increases their business toward the carrier over electronic channels. Hart and Saunders [21] find that suppliers' trust in customers increases the suppliers' use of electronic data interchange (EDI) for diverse functions (e.g., inventory advice and order status report). Klein et al. [30] report that mutual trust between trading partners increases IT customization for supply chain coordination and improves strategic information sharing about capacity planning, production schedule, marketing strategies etc.

However, prior studies have more often focused on the trust between particular trading partners in B2B e-commerce, which is one type of particularized trust. Two types of trust have been distinguished in research: particularized trust and generalized trust [48,49]. Particularized trust can be thought of as a characteristic of an interpersonal relationship. It occurs in dyads and refers to a particular person. Generalized trust is the faith that

\* Corresponding author. Tel.: +86 571 88206827.

E-mail addresses: [quwg@zju.edu.cn](mailto:quwg@zju.edu.cn) (W.G. Qu), [alain.pinsonneault@mcgill.ca](mailto:alain.pinsonneault@mcgill.ca) (A. Pinsonneault), [tomiuk.daniel@uqam.ca](mailto:tomiuk.daniel@uqam.ca) (D. Tomiuk), [milowang@163.com](mailto:milowang@163.com) (S. Wang), [lyuan@zju.edu.cn](mailto:lyuan@zju.edu.cn) (Y. Liu).

we have in people in general (including, e.g., neighbors, fellow citizens, and even foreigners). As a process-based trust, particularized trust develops over time through interactions between the two parties in a relationship [75]. Conversely, generalized trust is a belief that people have about others and often arises from one's institutional and cultural environment [49].

Although prior studies have offered valuable insights on the role of trust on B2B e-commerce based on closed IOS (closed B2B e-commerce hereafter), their findings may not be applicable in B2B e-commerce based on open IOS (open B2B e-commerce hereafter) due to the significant differences between closed IOS and open IOS. Based on a comprehensive literature review on IOS research, Robey et al. [58, p. 508] state that "research results generated from the first wave of IOS research on EDI are not particularly insightful for understanding the next generations of IOS based on open standards". This statement can also be applied to the trust research in B2B e-commerce. In fact, for closed B2B e-commerce that involves a stable group of firms, studying particularized trust between partners is appropriate. However, for open B2B e-commerce that involves a huge number of firms with dynamic membership, focusing on the role of generalized trust among firms, rather than particularized trust, may be more likely to augment our understandings on open B2B e-commerce.

Therefore, our study focuses on generalized trust. More specifically, our study examines how social trust of a country affects firms' use of open and closed B2B e-commerce. In this paper, we define a country's social trust as the faith that people of the country have in other people in general (i.e., social trust represents the country-level aggregation of the individual-level generalized trust) [31,48]. We contribute to the research by showing the important role of social trust in B2B e-commerce, especially in open e-commerce. With the increasing popularity of open B2B e-commerce in the business world [58,72], more research on open B2B e-commerce is urgently needed to provide insights regarding the use and management of open B2B e-commerce [55]. Our study helps to fulfill this research gap in the literature and practical needs from the business world.

The rest of the paper is structured as follows. First, we review the literature that discusses particularized and generalized trust and that investigates open and closed B2B e-commerce. Drawing on research on social trust [39,67], inter-organizational governance [29,50], and collective action [35,46], we develop a theoretical framework to link social trust in a country to B2B e-commerce. Our framework is then tested using a large-scale dataset from 27 European and related countries. We conclude our paper with a discussion on implications and potential extensions.

## 2. Theoretical background

### 2.1. Open and closed B2B e-commerce

Numerous benefits of open standards have been noted in the literature. These include operational cost savings, supply chain flexibility, and inter-organizational knowledge creation [19,45,46]. Studies typically posit that open standards-based IOS will become the next generation of IOS because they are far superior to traditional closed IOS due to their openness/ubiquity and advanced functions. For instance, open standards are more likely to facilitate cross-industry coordination because they are more flexible and possess more easy-to-learn formats, and they do not suffer from partner-specific customization [72]. They also allow many-to-many electronic connectivity relationships and herald a much richer and more flexible form of business process connectivity across enterprises [45].

One of the highlighted advantages of open standards is that, unlike closed standards, open standards enable firms to connect to

more trading partners and give firms the flexibility to shift from one partner to another with a low level of switching costs [20,72]. For instance, Gosain et al. [20] suggest that new technologies such as Web services and XML-based data interchange help overcome the inflexibility of conventional EDI and closed standards. They do not require the excessive investment costs associated with traditional EDI that often rule out the possibility of connecting with diverse partners. Similarly, Zhu et al. [73] point out that, compared with closed standards, open standards generally have a broader trading partner base; and unlike closed standards, with which electronic connections are established only with existing partners, open standards enable indexing and searching for unknown buyers and suppliers.

On the other hand, the benefits of closed B2B e-commerce have also been widely documented in the literature. For instance, it is suggested that the use of closed IOS may lead to a partnership relationship and often create value for both trading parties [1,13]. In addition, firms engaged in closed B2B e-commerce with their partners often gain competitive advantages over those that do not use closed IOS [47,64]. In fact, the bilateral investments in relationship-specific closed B2B e-commerce can be viewed as an alternative governance mode that acts as a substitute for managerial hierarchy and vertical financial ownership [29]. With this commitment, both trading parties are often more willing to invest in the relationship, which in turn generate more value and lead to competitive advantages.

### 2.2. Generalized trust

Important differences exist between particularized trust and generalized trust [49,52]. As proposed by Luhmann [43], particularized trust is based on the emotional bond between individuals and is more characteristic of primary and small group relationships; and generalized trust is more characteristic of abstract relationships where trust is related to the functioning of bureaucratic systems (e.g., legal, political and economic systems). In other words, particularized trust occurs in dyads and refers to a particular person. Generalized trust is the faith that we have in people in general, including people we have never met. For a given person, even though her particularized trust could vary greatly from relationship to relationship, her generalized trust is likely to remain relatively constant. A similar distinction of trust has been made by several other researchers [3,51,56].

Researchers have provided different explanations for the sources of generalized trust [48,52]. One school of thought claims that good institutions may create and maintain incentives for behaving trustworthily and thus result in generalized trust [41,59]. The reason is that appropriate institutions in a country are more likely to detect and sanction betrayal so that people may not behave opportunistically. As a result, there is a rational basis for trusting other people. That is, good institutions may improve generalized trust by diminishing the risk associated with trusting other people. In particular, scholars have highlighted the important role of institutional fairness and evenhandedness in supporting generalized trust, especially in socially or ethnically diverse society [48]. For instance, it is suggested that democratic institutions may encourage generalized trust because democracy usually assigns the same rights and duties to all members of the society [42].

Another stream of research suggests that generalized trust is ultimately based on cultural values and moral norms, as argued especially by Uslaner [65]. Unlike the institutional explanation that generalized trust depends on institutional environments and personal experience, the cultural explanation states that generalized trust is determined by cultural values and norms such as optimism, certain religious values (e.g., values embodied in

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