The Impact of Formal Controls and Relational Governance on Trust in Crowdsourcing Marketplace: An Empirical Study

Research-in-Progress

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Abstract

Information system research has examined client-vendor trust relationship and governance structures in outsourcing context. Extending the complementary relationship between formal controls and relational governance, this study investigates how formal controls and relational governance influence trust in a crowdsourcing marketplace setting. Furthermore, to combine data from both vendor and client, the paper adopts the method of degree-symmetric value for construct conceptualization measurement, and data analysis. This helps us to understand trust in the CM setting, as opposed to a single sided perspective. The research model will be validated and tested using a field study with matched client-vendor samples from zhubajie.com, a leading crowdsourcing marketplace in China. Contributions are intended to shed light on the phenomenon of crowdsourcing, especially, trust relationships among clients, vendors, and crowdsourcing marketplace.

Keywords: crowdsourcing marketplace, formal controls, relational governance, trust, commitment
Introduction and the Crowdsourcing Context

Crowdsourcing has been well established as a credible vehicle for outsourcing work through its format of an open call to an undefined, albeit implicitly large community (Howe, 2006; Doan et al., 2011; Brabham, 2008; Rouse, 2010). Currently, crowdsourcing is being used across a variety of different settings for sundry purposes, ranging from simple tasks such as letter writing and graphics design to complex R&D innovation (Andriole, 2010; Erickson and Petrick, 2012). Within this wide range of applications, the focus of this study is on the crowdsourcing marketplace (CM), which is a virtual community or online intermediary within which clients broadcast task requirements and provide certain monetary rewards for vendors to participate in completing tasks or competing for the rewards (Sun, 2009). Examples of this type of CM include odesk.com, elance.com, innocentive.com and numerous others worldwide. In recent years, crowdsourcing has received significant attention from researchers and practitioners. These include but are not limited to: (1) conceptual studies introducing crowdsourcing variations (Doan et al., 2011), (2) taxonomical studies and typologies of crowdsourcing (Rouse, 2010; Geiger et al., 2012), and (3) case studies of paradigms of crowdsourcing marketplaces like Amazon Mechanical Turk (Kaufmann et al. 2011; Ipeirotis, 2010).

In the last decade, China’s online paid CM has undergone rapid development as well. Zhubajie.com was established in 2006 and is currently the leading CM in China. Zhubajie.com, together with the other CMs, allows two transaction models: “contest” and “contract”, as listed by witmart.com, the equivalent English version of zhubajie.com. The contest model allows client to specify the reward and choose the best bid, while in the contract model, the vendor is selected by the client based on qualifications and proposals for work, and the vendor undertakes the task with an agreed reward and specific time limit. This contract model is well suited for tasks like programming, website design, software development etc., areas to which IS scholars have long paid attention. The contract model can be characterized by the traditional outsourcing features with the major additional characteristic of CM as an intermediary connecting client and vendor. The client and vendor need to follow the rules set up by the marketplace, in order to complete the outsourcing project and successfully engage in transactions in this more dynamic, turbulent and uncertain environment. We argue that previous literature on trust and commitments of client and vendor applies well to the contract model.

With specific regard to managing client and vendor outsourcing relationships, previous literature has highlighted the ability of outsourcing to coordinate interorganizationally (Kishore et al., 2003) and two prevailing perspectives that underlie most research on interorganizational relationship management: (1) formal controls and (2) relational governance (Poppo and Zenger, 2002; Goo et al., 2009). Previous literature has also examined the popularity and success of online auction marketplaces (Pavlou and Gefen, 2004). However, previous research has not focused on client-CM-vendor relationships in a crowdsourcing context; in particular, important issues such as trust in the CM setting have not been addressed. Therefore, this paper, we believe, addresses a relevant issue. The study applies governance theories in outsourcing such as formal contracts and relational governance to explain and evaluate the relationships among three entities: (1) the client, (2) the vendor and (3) the CM; in particular, what steps can be taken to build Trust in the Crowdsourcing Marketplace Setting (TCMS) so as to encourage legitimate transactions in CM. At the same time, this study further explores the possible complimentary relationship of formal controls and
relational governance, as supported by some research. In that others posit this as a substitution model (Gulati, 1995; Uzzi, 1997), the present study should be able to lend empirical evidence one way or the other on this question.

Based on the theoretical framework of governance and trust in outsourcing context, this study contributes to the research of both areas by answering the following questions:

RQ1: How do extent of formal controls (EFC) and extent of relational governance (ERG) influence TCMS? Do they interact in a fit or some other pattern?

RQ2: Does TCMS influence commitment in the crowdsourcing marketplace setting (CCMS)?

The rest of the paper is organized as follows. We begin with the theoretical background, research model and hypotheses. Next, the paper presents the methods, measurements, and data analysis techniques. We conclude the paper with the limitations and some future research questions.

**Research Model, Theoretical Development and Hypotheses**

Before elaborating the theory base for this work, we foreshadow where this is all heading. A preview of our resultant research model (shown in Figure 1) can be helpful to see the relevance of the literature being analyzed.

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**Legend**

<table>
<thead>
<tr>
<th>EFC</th>
<th>ERG</th>
<th>TCMS</th>
<th>CCMS</th>
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<td>Extent of Formal Controls</td>
<td>Extent of Relational Governance</td>
<td>Trust in Crowdsourcing Marketplace Setting</td>
<td>Commitment in Crowdsourcing Marketplace Setting</td>
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**Degree-Symmetric Constructs in the Model**

Before we further elaborate on the relationship of the constructs, it is necessary to define the three key entities in our study. A CM is a trusted intermediary ensuring that online vendors successfully complete the task requests and online clients pay for the charges. The crowdsourcing client is an entity that initiates the crowdsourcing process by submitting a task request and specifying the acceptance criteria.

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1 Note: Although we collected data from only two sides of the relationship, the dataset is able to evaluate the relationship of three entities. EFC and TCMS evaluate triadic relationships among client, vendor and the CM, i.e., the Internet platform while ERG and CCMS evaluate the dyadic relationship between client and vendor.
Crowdsourcing vendors are members of the crowd that undertake the execute tasks and gain monetary reward from the clients for their work. As we can see, the successful completion of tasks and transaction in a CM entails trust and commitment from both the vendor and the client. A lack on either part will lead to failure. Therefore, it is necessary to have constructs that can capture information from both sides and are able to explain trust relationships in the CM setting. Degree-symmetric constructs serve our purpose well.

Traditional monadic models examine only one side of the business relationship, i.e., in our research context, it would be either client or vendor. Symmetric models, on the other hand, examine the balance between two sides in a relationship. However, with only a relationship’s symmetric value, a client and vendor could have low values of trust in each other, but still have a high symmetric value. Degree symmetric models capture both the depth and balance of the relationship between client and vendor (Straub et al., 2004), and for this reason is adopted by our study. We have posited constructs that are dyadic and triadic in nature. Our reasoning below, therefore, explains how these variables relate to each other.

Trust theory and the CM Setting

Defined in the context of supplier and buyer relationship, mutual trust has been identified as a key factor contributing to alliance success as well as alliance performance (Zaheer et al., 1998), including interacting with an e-vendor (Rechheld and Schefter, 2000; Pavlou and Gefen, 2004; Gefen et al., 2003). One of the most critical features of trust is vulnerability, implying something of importance to be lost (Kee and Knox, 1970; Gambetta, 1988; Anderson and Narsus, 1990).

TCMS goes beyond mutual trust through the community of client and vendor in the CM. As mentioned earlier, there are three identities in the CM setting: the client, the vendor and CM. Therefore, as shown in Figure 2 below, there are four relationships involving trust that need to be measured and combined to capture TCMS, namely, (1) client trust in the crowdsourcing marketplace (CTCM), (2) client trust in the community of vendors (CTCV), (3) vendor trust in the crowdsourcing marketplace (VTVM), and (4) vendor trust in the community of clients (VTVC). The CM in the setting is a trustee, while the client and vendor can be either trustor or trustee.

Figure 2. Trust Relationships in the Crowdsourcing Marketplace Setting

Even though a number of factors leading to trust have been proposed in prior literature, i.e., trust bequeathed on varying targets, TCMS can arise from integrity, ability and benevolence of the trustee (Mayer et al., 1995; Gefen et al., 2003; Vance et al., 2008). As noted by Mayer et al, “each contributes a unique perceptual perspective from which to consider the trustee, while the set provides a solid and parsimonious foundation for the empirical study of trust for another party” (Mayer et al., 1995, p. 717).
Integrity refers to the extent to which the trustor perceives the trustee adhering to some set of principles that the trustor finds acceptable. Benevolence refers to the extent to which the trustor perceives the trustee’s willingness to do good to the trustor. Ability in our context is that group of skills and competencies that enable a party to have influence in some specific task domain, such as website design, application development.

**Trust Elements in the CM Setting**

Firstly, trust toward the CM from both client and vendor is necessary. The CM can facilitate outsourcing and transactions in many ways, but one of the main roles of the CM is to help build trust for client and vendors in the CM setting. To reduce uncertainty and build trust, the CM needs not only to provide a reliable and secure environment with fair and open rules and procedures but also to accredit client/vendor who register online and encourage benevolent transaction norms. With no trust, client and vendors will not be able to continue operating in the CM environment.

Secondly, mutual trust towards each other by client and vendor is also needed. Trust is even more important in the client-CM-vendor sourcing relationship, in which clients and vendors communicate mainly through information and communication technologies and are often geographically dispersed. However, one of the effective ways to build trust is through trust transference, which refers to the generalization of impression about one entity to related entities (Hamilton and Sherman, 1996), has been shown to occur in the online context (Stewart, 2003). Following trust-transference theory (Doney and Cannon, 1997; Stewart, 2003), we argue that client trust in the CM can help build client trust in the community of vendors, and vice versa. Trust can be built in the CM because it is an effective mode of trust creation in business environments where clients and vendors have no previous interaction history and come from different social and cultural backgrounds. It is particularly applicable in such arm’s length transactions.

Clients who trust the CM should also trust the community of vendors because of the perceived vendors’ association with the CM. In contrast, trust will be lost as trust in the CM erodes (Durkheim, 1964). The community of vendors sends a positive signal about its own trustworthiness by doing business in a trusted third party intermediary (Shapiro, 1983). Similarly, vendors who trust the CM should also trust the community of clients. However as noted by Mayer et al. (1995), ability, benevolence and integrity may vary independently from each other, which will influence the degree of trust towards the other party accordingly.

**Formal Controls and Relational Governance**

As mentioned above, formal controls and relational governance are the two prevalent perspectives in studies of interorganizational sourcing relationship. In the present study of CM, formal controls can be defined as “the written contracts and institutional mechanisms designed to guide behaviors toward desired objectives, whereas relational governance is unwritten, work-based mechanisms designed to influence interorganizational behavior” (Goo et al., 2009, p. 120).

According to transaction cost economics, under contracting as the governance mechanism, contractual safeguards rise with exchange hazard (Williamson, 1985). When uncertainty increases, formal contracts should be more detailed in order to make monitoring less difficult and to facilitate adjustment.
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(Barthelemy et al., 2006; Zhou, 2008). Managers therefore craft more customized formal contracts to provide a safeguard from the opportunistic actions of sellers that are thought to increase with uncertainty (Williamson, 1996). Consistent with this logic, in CM, a formal contract is crafted between client and vendor not only to specify the detailed requirements and obligations of both parties but also to guarantee the safety of the transaction and to avoid opportunistic behaviors.

Apart from formal contracts, institutional mechanisms are another form of formal controls offered by the CM as a transaction intermediary. In sum, institutional mechanisms in online marketplaces are “third-party institutional structures that provide a rational basis for interaction among marketplace participants” (Pavlou and Gefen, 2004 p.41). Although not an exhaustive list of all institutional mechanism, these three factors (feedback, escrow service and authentication) are representative and the most common mechanisms. First, feedback mechanisms are essential market-driven reputation systems where clients can describe their past experience with specific vendors, and vice versa. Through feedback features, the CM provides a credible and effective depiction of the vendor and clients and their experiences. Second, escrow services in CM are third party services in which a third-party authorizes payment only after the client receives and approves the service products. Alternatively, vendors get payment only if they finish and hand over their service products. Many escrow services also offer mediating services in cases of disputes between buyers and sellers (Pavlou and Gefen, 2004), which in CM are clients and vendors. Third, authentication is the real name identification process employed by the CM, and usually deals with licenses and accreditation. Digital certification has been shown to build trust (Luo, 2002). Thus, we hypothesize:

**H1: Extent of formal controls positively influences trust in the CM setting.**

Two different conceptualization of relational governance can be found in prior literature. One emphasizes the role of mutual trust and relational capital in forming the client-vendor relationship (Lee and Cavusgil, 2006; Dyer and Singh, 1998). The other deals with social actions such as open communication and cooperation (Lacity et al., 2009; Goo et al., 2009). This being the conceptualization adopted by this study. Relational governance builds on the argument that contracting is never completely discrete, in that even the most fundamental model of discrete exchange includes some relational elements (Macneil, 1980).

In this study, we adapted the conventional key attributes for relational governance, i.e., relational norms, harmonious conflict resolution and mutual dependence (Goles and Chin, 2005; Goo et al., 2009). Relational norms are patterns of accepted and expected behaviors that are partially shared by clients and vendors, but directed toward collective goals (Heide et al., 1992; Jap et al., 2000). We focus on three types of relational norms: (1) solidarity, (2) flexibility and (3) information exchange. Solidarity is both client and vendor expectations that behaviors are directed toward relationship maintenance and common goals. Flexibility refers to the joint expectation that both clients and vendors that are willing to make adaptations as circumstances change (Dwyer et al., 1987). Information exchange is the expectation that the clients and vendors will freely and proactively share useful information to each other (Heide and John, 1992). Harmonious conflict resolution refers to the extent to which clients and vendors achieve mutually satisfying resolutions of their conflicts and thus, disagreements are replaced with agreement and consensus (Robey et al., 1989). Mutual dependence is the recognition by both clients and vendors in an exchange relationship that the relationship provides benefits greater than either partner could attain alone.
A rich body of empirical work shows that relational governance improves the performance of interorganizational exchanges in general (McEvily et al., 2003), and IT outsourcing in particular (Sabherwal, 1999). Thus, we hypothesize:

**H2: Extent of relational governance positively influences the trust in the CM setting.**

**Relationship between Formal Control and Relational Governance as Fit**

Previous literature has found both a substitution relationship between formal contracts and relational governance (Gulati, 1995; Uzzi, 1997; Ghoshal et al., 1996), and a complementary one (Poppo and Zenger, 2002; Goo et al., 2009). Responding to the need for the empirical testing of the relationship between the two mechanisms to better understand their impact on outsourcing success, we also propose a fit relationship between formal controls and relational governance.

Fit is defined as “the degree to which the needs, demands, goals, objectives, and/or structures of one component are consistent with the needs, demands, goals, objectives, and/or structures of another component” (Nadler et al., 1983, p. 119). Venkatraman conceptualized six perspectives of fit, among which, “according to the moderation perspective, the impact that a predictor variable has on a criterion variable is dependent on the level of a third variable, termed here as the moderator. The fit between the predictor and the moderator is the primary determinant of the criterion variable.” (Venkatraman 1989, p.424) We are adopting this view. In our case, we believe the interaction of EFC and ERG has an impact on the trust in the crowdsourcing marketplace setting.

Despite the argument that modeling both formal contracts and relational governance is problematic (Ghoshal et al., 1996), we believe that the matching of formal controls and relational governance will enhance TCMS. Formal contracts and institutional mechanisms help to provide a healthy environment for conducting transaction in the CM. Relational governance heightens the probability that cooperation will safeguard against hazards that are poorly protected by a formal contract, thereby helping overcome the adaptive limits of contracts. Thus, we hypothesize:

**H3: Extent of formal controls and extent of relational governance interact positively to explain trust in the CM setting.**

**Commitment in the CM setting**

Commitment to an information systems development project is widely believed to affect the eventual success of the project and the sourcing relationship. Problems usually arise from low commitment of either client or vendor in the CM setting (Newman and Sabherwal, 1996; Goo et al., 2009). Commitment is defined in our research as a future-oriented willingness from both the client and vendor to engage in further business. It refers to client and vendor mutual effort to maintain and sustain their business relationship. Referring back to the relationships in the crowdsourcing marketplace setting, there are two types of commitment in the setting: client commitment in the community of vendors (CMCV) and vendor commitment in the community of clients (VCCC). Consistent with previous studies, we adopt the definition of commitment by Goo et al. (2009), i.e., commitment (Scanzoni, 1979; Kumar et al., 1995) in outsourcing relationship entails: “(1) durability (a desire to continue a relationship because of positive effect toward the partner), (2) input (a willingness to be deeply involved in the relationship through
investment of capital and effort), and (3) consistency (a confidence in the stability of the relationship)” (Goo et al. 2009, p. 127). Uncertainty and information asymmetry of CM requires trust; moreover, client and vendor commitment is critical for the transaction behavior and long-term business partnership in crowdsourcing marketplaces. The effect of trust on commitment has been empirically supported by previous studies (Goo et al., 2009; Morgan and Hunt, 1994).

Following a deductive logic, in the CM setting, when the client and vendor both trust each other and the marketplace, they are more willing to put efforts to work for shared goals, which in turn lead to better outcomes in completing the transaction. Thus, we hypothesize:

**H4: Trust in the CM Setting positively influence commitment in the CM Setting.**

**Control Variables**

To fully examine the research model, two control variables that may influence trust and commitment in CM are incorporated: complexity of tasks and previous experience. First, complexity of tasks may influence trust and moderate the relationship between trust and commitment because routine tasks and non-routine tasks require varied skills and effort. Besides, the payment for different types of task varies. We, therefore, include complexity of task as a control variable in this study. Second, previous experience is always expected to influence trust because familiarity is considered to be a major factor in trust building.

**Measurements, Data Collection and Data Analysis Technique**

*Extent of formal controls* is measured as a second-order formative construct by adapting scale of institutional mechanism and formal contract. *Extent of relational governance* is measured as a part third order part second order formative construct by mainly adapting a outsourcing relational governance scale. We make relational norm a second-order construct by measuring the three dimension of solidarity, flexibility and information exchange. *Trust in the CM setting* is measured as a third-order construct by measuring client trust in the intermediary, vendor trust in the intermediary, client trust in the community of vendors and vendor trust in the community of clients. Trust is measured by the three dimensions of ability, integrity and benevolence. *Commitment in the CM setting* is measured as a second-order formative construct with three dimensions as input, consistency, and durability. All first order measurements are reflective. The instruments are omitted due to the brevity of this research-in-progress paper.

This research model is tested by using a field study of pair-matched samples of client-vendor dyad. The research site is zhubajie.com. A back translation approach (Hoskisson et al., 2000) is adopted since the instruments are first developed in English and then translated into Chinese. First of all, the design was intended to capture the nature of the relationships of the three entities, namely, client, vendor and CM. The research model intends to explain the trust relationships in the CM setting rather than the perspective of a single side as in many other studies. Second, based on empirical considerations, collecting data from both sides not only mitigates the concern about common method bias (Luo et al., 2006; Podsakoff et al., 2003), but also enables us to validate the measures and model using degree-symmetric values.

*Data Collection from Vendor* We first gathered the list of vendors by posting a job at zhubajie.com asking vendors to participate in the study with a reward of 10RMB per questionnaire. Then, we screened for those qualified for the study. Our requirements for participation included: first, the vendor should have
working experience in IT-related task area; and, second, the vendor should have at least one previous successful transaction so that we could contact the client who had worked with the vendor.

**Data Collection from Clients** After we confirmed the participation of vendors, we picked up the clients of the vendor by going to the homepage of the vendor and randomly selecting from clients who left feedback about the vendor's service. The feedback system is effective and solid evidence regarding their inherent cooperation.

Partial least squares (PLS) will be used to validate the measurement model and test the structural model. PLS is suitable for this study for the following reasons. First, PLS is good for exploratory work and for prediction when the research theories are in early stages of development. Second, PLS readily handle both formative and reflective constructs whereas covariance based SEM requires MIMIC modeling. Third, PLS does not require normally-distributed input data (Ringle et al., 2012; Gefen et al., 2011).

We are now conducting a preliminary data analysis of the pre-study. In addition, this research model needs to be further tested in a larger scale study which is being undertaken with the cooperation with zhubajie.com.

**Limitations and Preparation for Larger Scale Study**

Of course, there is limited external validity since we are studying only one site. Moreover, the instrument questions can be further tuned. Reflective measures for each multi-order constructs, for example, should be developed in order to have more degrees of freedom in measurement.

Given that there are a number of limitations with our study, we encourage researcher to further explore and look into the phenomenon of crowdsourcing. First, this study only discusses trust in the contracting model in the CM. Future research should look into the contest model and explain the differences and similarities of trust relationship between the two models. Second, the result of this study is limited in external validity since the sample gathers data from one crowdsourcing marketplace in China. As noted by some researchers, the conceptualization of trust might be different under different cultural conditions and social environments. Therefore, replications of this study and validation of the TCMS model using other data sources are needed. Third, the paper only examines TCMS with three dimensions of trust, namely, integrity, benevolence and ability. Further research might look into other subdimensions of trust.

**Conclusion and Contribution**

For this paper, we are trying to understand the emerging crowdsourcing marketplaces, especially those involving a contractual relationship between vendor and client. The paper has a potential to make several contributions to both theory and practice. First and foremost, this study will contribute to crowdsourcing theory building. Extending the notion of trust in a community of sellers or buyers in e-commerce setting, the paper proposes the nature of the trusting relationships among the client, the vendor and the CM. We examine whether TCMS is critical in this form of sourcing. Second, we expanded formal controls by including the notion of institutional mechanism to explain TCMS. Last but not least, in practice, this paper will provide guidance for the CM to help build trust among clients and vendors, and ultimately promote legitimate transactions.
References:


