Investigating the antecedents of organizational task crowdsourcing

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ABSTRACT

Crowdsourcing is increasingly recognized as a potential approach to organizational task solving. However, few studies have explored and statistically tested the antecedents underlying the crowdsourcing intentions of organizations. This paper examines the antecedents of firms' crowdsourcing intentions based on transaction cost theory and the resource-based view and validates these antecedents using survey data from 161 organizations. The results indicated that the perceived benefits of cost reduction, brand visibility, and access to specialized skills positively affect firms' intention to crowdsource, while codification costs and proposal evaluation costs negatively influence firms' crowdsourcing intentions, both directly and indirectly, by diminishing perceptions of cost reduction.

1. Introduction

Crowdsourcing is a phenomenon in which an organization (i.e., seeker) recruits a large group of undefined individuals (i.e., solvers), referred to as the crowd, to work on organizational tasks via Internet-based platforms [44]. As these crowds become more connected and informed [71], they can contribute their distinct expertise to solve organizational problems [44,24]. Thus, firms are starting to leverage the wisdom of the crowd and realize the benefits of a crowdsourcing strategy [94].

This trend is evident in the emergence of crowdsourcing platforms, such as Amazon Mechanical Turk, InnoCentive, and TaskCN [50,88]. For example, Amazon Mechanical Turk hosts more than 100,000 tasks daily.[1] TaskCN is one of the largest crowdsourcing platforms in China for performing tasks such as website development, advertisement posting, and business proposal writing. Even established market leaders such as Google and Dell have recognized the potential of crowdsourcing. In 2008, Google funded a $10 million crowdsourcing project (Project 10^100) that called for ideas from the crowd to change the world [89]. Dell launched the IdeaStorm platform in 2007 to collect innovation ideas from the public [9]. As of September 2014, more than 548 ideas have been implemented.[2]

However, seeker firms encounter challenges in conducting crowdsourcing activities, including selecting the tasks to crowdsource and appropriately formulating these tasks to obtain satisfactory solutions. Ambiguously defined tasks can mislead solvers, resulting in the return of unsatisfactory solutions to seeker firms [2,21]. Crowdsourcing requires that the employees of a firm work with crowdsourcing platforms to specify task requirements, provide feedback for further improvement of solvers' proposals, and select final solutions [74]. For certain tasks, transferring specifications from seeker firms to solvers to allow the latter to provide solutions through crowdsourcing may be arduous [12]. These activities may incur costs for seekers (e.g., in terms of employee time and effort), in opposition to the purpose of crowdsourcing, i.e., lowering the cost of solving organizational tasks. Thus, there is a need to examine and understand the costs that firms may perceive when deciding to crowdsource tasks.

Prior research in this area [12,72] has primarily examined the factors that motivate firms to crowdsource tasks through conceptual or case studies. In a conceptual paper, Schenk and Guittard [72] proposed that crowdsourcing enables firms to mobilize external competencies for internal tasks at lower cost.

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A descriptive study of Mechanical Turk [52] suggested that crowdsourcing can be a less expensive way to solve firms' problems and a viable approach to obtain creative solutions. However, previous research on seekers' crowdsourcing behavior has consisted mainly of conceptual [12,72] or case studies [52,87] proposing the benefits of crowdsourcing for seekers. Thus, there is an absence of theoretically driven empirical research to explain the antecedents (including the costs) of seeker participation in crowdsourcing (for a thorough review, see [91]). These research gaps are the motivation for this study.

This paper aims to address this knowledge gap by developing a model to answer the following research question: *what drives (or inhibits) firms to crowdsource internal tasks?* Drawing on the resource-based view and transaction cost theory, a context-specific model was developed to explain seeker firms' intention to crowdsource. The model proposes perceived obtainable resources that enhance firms' intention to crowdsource and costs that reduce their intention to crowdsource. The model is tested using a field survey of 161 seeker firms in TaskCN, one of the largest crowdsourcing platforms in China. The results are expected to contribute to research and practice by further elucidating the determinants of a firm's intention to crowdsource internal tasks.

2. Conceptual background

This section reviews and identifies theories, i.e., the resource-based view and transaction cost theory, that could shed light on a firm's intention to crowdsource. Informed by these theories and the related literature, relevant constructs for the model are subsequently conceptualized.

Similarities have been noted between crowdsourcing and outsourcing [2,72]; both employ external talents to work on organizational tasks. For both strategies, the process of managing external parties and the final outcomes are subject to uncertainty. Given these similarities, the theories applied in the outsourcing literature could be applicable in the context of crowdsourcing [72]. Thus, we review theories employed in the outsourcing literature and examine their relevance to understanding crowdsourcing behavior. Three broad perspectives have been commonly used to explain the determinants of outsourcing: strategic, economic, and relational [41]. The strategic perspective concerns the strategies organizations formulate for outsourcing and how they allocate resources to pursue these strategies and obtain desirable performance. This perspective includes lenses such as the resource-based view [7], the knowledge-based view [33], resource-dependency theory [62], firm strategy theory [70], and game theory [83]. The economic perspective is related to the strategic view and considers how the benefits of outsourcing can be achieved efficiently with minimal costs. This perspective includes lenses, such as transaction cost theory [16], agency theory [23], and incomplete contracts theory [39]. The relational perspective focuses on how organizations develop relationships with external partners and the implications of these relationships for outsourcing [20]. The relational perspective includes lenses such as social exchange theory [10], social capital theory [59], and institutional theory [66].

Crowdsourcing is considered both a strategic and an economic choice for organizations [87]. Firms must weigh strategic and economic benefits against costs before deciding to engage in crowdsourcing activities. Thus, we consider the strategic and economic perspectives relevant to this study. Further, in the context of crowdsourcing, the relationship between solvers and seekers is transaction-based and short term [87,79]. Seekers may not be able to form a relationship with particular solvers because there are usually a large number of solvers for each task and the same solvers may not participate across tasks.[3] Therefore, compared to the strategic and economic perspectives, the relational perspective may be less relevant in this context (cf. [79]). Crowdsourcing involves leveraging the crowd to solve organizational problems rather than solving them internally [44] and is therefore similar to a firm's decision to make vs. buy. Among the theories under the economic perspective, transaction cost theory concerns the decisions of organizations to buy particular products/services from external sources or produce them internally [86]. Thus, we consider it appropriate to include costs in our model.

In addition, crowdsourcing serves as a means for firms to access resources that are unavailable within the organization [54] and to obtain novel solutions from the crowd [12,72]. Given these characteristics, we consider the resource-based view a suitable theoretical lens to understand a firm's crowdsourcing decision because it posits that a firm will look to external sources for resources that are lacking internally [7]. As a complementary lens, the resource-based view (RBV) together with transaction cost theory is used here to explain a seeker's intention to crowdsource.

However, several characteristics differentiate crowdsourcing from outsourcing. First, crowdsourcing aims to recruit undefined individuals to work on organizational tasks [44] rather than recruit selected external vendors in outsourcing. All solvers in the crowdsourcing platform are invited to tackle problems through an open call, in contrast to outsourcing, providing an opportunity for firms to advertise their brands [57] (e.g., brand visibility). Second, the quality of solutions obtained from crowdsourcing is less susceptible to control or guarantee than outsourcing. Solvers in crowdsourcing platforms may not be specialized in a particular area, and some solutions, even if novel, may be difficult to implement [65]. By contrast, in outsourcing, the firm can carefully monitor the development and implementation of the solution to ensure desired quality. Third, in general, multiple solution providers simultaneously work on the same task in crowdsourcing (e.g., solution diversity) but not outsourcing. As a result, firms have more choices of solutions in crowdsourcing and need to expend resources to select the best solution (e.g., proposal evaluation cost). Overall, these differences indicate that firm crowdsourcing requires investigation in its own right. In this study, we have adapted the theories used in the outsourcing literature to crowdsourcing by theorizing the effects of context specific factors (i.e., solution diversity, brand visibility, and proposal evaluation cost), which will be explained next.

2.1. Transaction and production costs in crowdsourcing

Transaction cost theory (TCT), which was initially developed by Coase [16] and extended by Williamson [86,85], is mainly used to identify the conditions under which firms will decide whether to perform certain tasks internally (e.g., make a product or service) or let them be performed by the market (buy). It argues that these decisions are made by balancing two types of costs, *production costs* and *transaction costs*, to achieve efficiency, which is important for organizations to sustain competitive advantage in the market [85]. Production costs are the costs required to make a product or provide a service, such as the cost of capital, labor, and materials. Transaction costs are the coordination costs for the activity, such as searching and planning, information communication, negotiating and process monitoring, and performance evaluation. TCT proposes that firms should perform tasks internally when transactions costs exceed external production savings and outsource tasks when internal production costs are high and present comparative disadvantage [55].

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[3] Firms are rewarded with credibility based on the monetary value of transactions in TaskCN. Although the credibility of firms may affect whether solvers take their tasks, it may be less relevant to a firm's intention to crowdsource.