# Managerial perspectives on crowdsourcing in the new product development process

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ABSTRACT

One way organizations have sought to improve the new product development (NPD) process is to leverage the wisdom of crowds by reaching out to different communities for product and service ideas. However, integrating crowdsourcing into NPD can be challenging for managers and executives managing the process. This exploratory, qualitative research provides internal perspectives from managers and executives at business to business (B2B) firms utilizing crowdsourcing during NPD. Their insights suggest that input gathered through online forums from internal crowds is typically used in the fuzzy-front end (FFE) of the NPD process, whereas externally generated ideas tend to be used more during the commercialization stage of development. Interestingly, in these data, crowdsourced ideas during NPD tended to result in product line extensions rather than new-to-the-world products. This result is due to operational barriers which include the absence of a formal process and infrastructure for crowdsourcing, lack of alignment between budgeting and project timelines with crowdsourcing efforts, and unclear responsibility for managing and validating crowdsourced ideas. In addition, online platforms that can be used for crowdsourcing (e.g., social media) may not be viewed as legitimate tools for idea generation. Therefore, crowdsourced ideas are still considered supplemental to more traditional market research.

## 1. Introduction

New products are key contributors to organizational growth, especially in the business-to-business (B2B) sector where they account for over 30% of B2B firms' annual sales and profits (Markham & Lee, 2013). In spite of this contribution to corporate success, new product failure rates remain high, averaging 40% (Markham & Lee, 2013). Therefore, organizations continue to search for ways to improve their NPD proficiency to ensure continued survival and growth (e.g., Pitta & Pitta, 2012). One way managers try to increase NPD success is to improve idea generation in the fuzzy front end (FFE) of the development cycle.

The reason for this focus on the FFE is that improvements in the early stage of development can generate higher profits faster than in later stages (Koen et al., 2002; Stevens, Burley, & Divine, 1999). This result occurs because idea generation often has more profit impact than improvement in commercialization and launch. Therefore, with knowledge of this impact, organizations have long sought to incorporate customer insights into the front end of NPD, using techniques including the Lead User Method (Herstatt & Hippel, 1992), one-on-one interviews (Griffin & Hauser, 1993), traditional market research, and

other techniques such as conjoint analysis (Green & Srinivasan, 1990).

Yet another mechanism to gather ideas in the FFE is crowdsourcing. The term crowdsourcing refers to the act of taking a job traditionally performed by an employee or specific team and outsourcing it to an undefined, generally large group of people in the form of an open call (Howe, 2008). The goal of the process is to improve the overall quality/ quantity of ideas obtained or the task performed. In the business context, crowds can be comprised of internal (employees) or external (lead users and customers) members. In new product development, crowdsourcing has been utilized as an operational innovation to enhance firms' new product development, extending the development process beyond its traditional organizational boundaries (Laursen & Salter, 2006; Wang, Hsiao, Yang, & Hajli, 2016). Managers may decide to involve customers in designing new products when the products are perceived to be difficult to use in order to gain consumers' perspectives early in the development process (Allen, Chandrasekaran, & Basuroy, 2016). Incorporating more feedback into NPD may also lead to innovative, new-to-the-world products.

The trend towards crowdsourcing has occurred in part because advances in technology have made it possible to gather ideas through

online communities quickly and efficiently (Howe, 2006; Simula, Töllinen, & Karjaluoto, 2013) versus traditional methods of focus groups, meetings, and other forums. Yet, despite the potential to generate creative and novel ideas, the use of crowdsourcing in the NPD process is still relatively new for most organizations. Managers are likely to encounter both advantages and challenges in adapting an existing NPD process to include crowdsourcing. Challenges may include designing an effective method for identifying good quality ideas and then incorporating these ideas in to the process.

To date, researchers have analyzed the ways organizations utilize crowdsourcing (e.g., Whitla, 2009), the various methods for crowdsourcing (e.g., Lüttgens, Pollok, Antons, & Piller, 2014), and the outcomes (i.e., success) of crowdsourced products (e.g., Lilien, Morrison, Searls, Sonnack, & von Hippel, 2002). In contrast to prior research, this paper examines the perspectives of individuals directly responsible for managing crowdsourcing efforts to understand operational advantages and challenges. This research also extends the current literature which has highlighted *what* crowdsourcing can be used for in NPD by uncovering *why* and *how* crowds are utilized in the NPD process.

Towards these ends, this research utilizes a series of in-depth interviews with managers and executives who are directly involved with new product development (NPD) and crowdsourcing in their respective organizations. To focus on the research questions and to illuminate the challenges facing managers in this area, this study relies on the resource based view (RBV) of the firm. The RBV is relevant in this context because crowdsourcing serves as an operational innovation that firms can utilize in their NPD processes. Crowdsourcing may allow them to better exploit internal and external human capital resources, which is necessary to maintain competitive advantage.

The following section provides an overview of the literature in the context of the questions guiding this research. As this is a qualitative study, the work was guided by broad research questions generated from the literature. Next, a detailed discussion describing the sample, data, and methodology used to answer these questions is provided, followed by a section addressing the results of the analysis and their organizational implications. The section concludes with a discussion of the limitations of the research and areas for future research.

## 2. Literature review and theoretical framework

This research uses the resource based view (RBV) of the firm as a theoretical lens to focus on three research questions which investigate how, in B2B marketing, crowdsourcing can be integrated in to the NPD process, the managerial advantages and challenges in the process, and the extent to which the resultant crowdsourced ideas are new-to-the-world products versus line extensions.

As a starting point, the RBV of the firm indeed provides a useful framework to understand how crowdsourcing can result in competitive advantage for organizations. The theory suggests that exploitation of the tangible and intangible resources of an organization serve as the basis of competitive advantage (e.g., Barney, 1991; Penrose, 1959; Wernerfelt, 1984). In order to effectively exploit resources, organizations must not only be able to leverage existing resources but also to develop new and dynamic capabilities to maintain competitive advantage in changing industry environments (Teece, Pisano, & Shuen, 1997).

Organizations can build these above-mentioned dynamic capabilities through organizational innovations, which are new methods used in business practices, workplace organization, or external relationships (Camisón & Villar-López, 2014; OECD, 2005). In turn, these organizational innovations can fall in to the following categories: 1)

administrative innovations which change the ways administrative duties are conducted (e.g., Damanpour, Szabat, & Evan, 1989), 2) management innovations which alter how managers make decisions or motivate employees (e.g., Birkinshaw, Hamel, & Mol, 2008; Hamel, 2006), or 3) operational innovations which are entirely new ways of doing things, like filling orders. Operational innovations can include processes such as providing customer service, or, the focus of this research, developing new products (e.g., Hammer, 2004, 2005). These new methods can involve both individuals within the company and external participants (e.g., Armbruster, Bikfalvi, Kinkel, & Lay, 2008) and serve as a powerful source of competitive advantage.

Therefore, in order to contend with the pressure to constantly innovate, organizations are utilizing various communities in their research and development (R&D) processes, shifting development from the R&D team alone to internal and external collaborators. Prior work has examined the use of innovation networks (Smart, Bessant, & Gupta, 2007) and stakeholder dialogues (Ayuso, Ángel Rodríguez, & Enric Ricart, 2006) as operational innovations for enhancing the R&D process. In similar vein, this inquiry rests squarely on the integration of crowdsourced information, from all sources, into the NPD process as an operational innovation.

Indeed, when examining the literature (e.g., Fernandes & Remelhe, 2015; Simula & Vuori, 2012) it appears that crowdsourcing tools in general, and particularly in B2B, can be classified by whether they are internal or external to the organization. This distinction will be critical in our analysis later, but for introductory purposes, it is important to note that crowdsourcing offers a method for both employees (internal crowds) and customers (external crowds) to provide ideas and feedback in a company's NPD process. In fact, researchers have posited that organizations can use crowdsourcing to tap into different communities of people. Simula and Vuori (2012) describe these different "layers of crowdsourcing" in a B2B context. The authors contend that ideas can first be crowdsourced internally from employees within an organization to provide a foundation for development.

The next layer of crowdsourcing can occur with trusted partners and pre-qualified participants. These relationships may include individuals with certain skills or expertise required for the project. Finally, in some contexts, organizations may wish to garner insights from a broader, more general crowd, perhaps for very early-stage brainstorming or new-to-the-world product development.

Managers may also rely on more specialized crowds. For example, developer communities are online communities for lead users or expert users to offer insights and ideas, empowering them as co-producers of new products (Fernandes & Remelhe, 2015). These communities are commonly used in B2B environments, such as those studied here. Given the growing prevalence of customer co-creation in product development (e.g., Prahalad & Ramaswamy, 2004) and the rush to incorporate external crowds into development, it might be anticipated that the bulk of ideas in NPD is crowdsourced from external sources, specifically lead users and customers.

In addition, the review of the literature (e.g., Gassmann & Schweitzer, 2014; Schweitzer, Buchinger, Gassmann, & Obrist, 2012) suggests that crowdsourcing may primarily be used to generate ideas in the fuzzy-front end (FFE) of the NPD process. However, there appears to be no definitive answer on either front. Specifically, there is a lack of clarity as to which publics (internal or external) are best used in the NPD process and whether crowdsourcing is mainly an innovation in the FFE of the process. Since internal collaborations require different management practices compared to collaborations with external communities (Djelassi & Decoopman, 2016; Simula & Ahola, 2014), there may be variation in how crowdsourcing is utilized in different stages of