Optimal Information Acquisition and Sharing Decisions:
Joint Reviews on Crowdsourcing Product Design

Jizi Li, Wuhan University of Science and Technology, China*

Xiaodie Wang, Huazhong University of Science and Technology, China

Justin Z. Zhang, University of North Florida, USA

iD https://orcid.org/0000-0002-4074-9505

Longyu Li, Fudan University, China

ABSTRACT

The acquisition and sharing of reviews have significant ramifications for the selection of crowdsourcing designs before mass production. This article studies the optimal decision of a brand enterprise regarding the acquisition/sharing of crowdsourcing design reviews in a supply chain. The authors consider an analytical model where the brand enterprise can privately acquire the manufacturer's review (MR) of crowdsourcing product designs and choose one of two information-sharing schemes—optional or mandatory sharing—to disclose MR to the key opinion leaders (KOLs), which help them to produce fans' reviews (FR). MR and FR integrate into the joint reviews (JR) that impact prospective consumers' purchase intention. The authors find that mandatory sharing significantly harms the brand enterprise's motivation to obtain MR, yet optional sharing is conducive to boosting JR on crowdsourcing designs. In addition, JR has a ceiling value, implying that excessively high FR and MR could not always enhance the effect of JR on crowdsourcing designs.

KEYWORDS

Crowdsourcing design, information acquisition and sharing, joint reviews, KOLs' reviews

INTRODUCTION

Consumers prefer to tailor their products instead of passively adopting a firm's offerings (Namin et al., 2023). Therefore, constantly launching new customized products is critical for enterprises to meet different individuals' demands (Ogink & Dong, 2019). Traditionally, enterprises rely on their internal R&D to enhance innovation capabilities and yet shoulder heavy financial burdens. However, mobile Internet and smart devices allow enterprises to obtain cost-saving innovation beyond the organization's boundary (Chan et al., 2021). One such innovation paradigm is crowdsourcing, through which enterprises seek solutions that appeal to potential users or prospective consumers (Liu et al., 2020). The fundamental goal of crowdsourcing is to solicit innovative ideas by exploiting

the collective expertise and wisdom of heterogeneous outside participants in a quick response to customized demands, rather than depending on a limited quantity of internal specified professionals (Liu et al., 2022).

Crowdsourcing has been implemented in both business-to-consumer (B2C) and business-to-business (B2B) markets (Gao et al., 2022). It helps firms effectively embed potential consumers' ideas into their innovation tasks. For example, with crowdsourcing innovation, Xiaomi, as one of the worldwide leading electronics manufacturers, earned over 5.6 million US dollars in 2018 from its smart products (Li et al., 2019), while Dell also has collected more than 16,000 novel ideas from its customers to sharpen its competitive edge via crowdsourcing innovation since 2010 (Bayus, 2013).

Although crowdsourcing allows firms to meet consumers' customized needs, it is still challenging to accurately and holistically assess the quality of crowdsourcing designs and ideas due to its online innovation (Li et al., 2021; Pan et al., 2022). To overcome this obstacle, firms encourage fans on crowdsourcing platform to post their reviews (FR) because a considerable number of consumers utilize online reviews from fans or early consumers to make purchase decisions. Meanwhile, the "herd effect" of online comments psychologically boosts consumers' purchase intentions and weakens their wait-and-see status (Chan et al., 2021).

Typically, consumer reviews are written online after products are purchased or consumed, and they are widely utilized to promote sales in e-commerce, but this kind of consumer review belongs to the after-purchase reviews, unsuitable for before-production crowdsourcing designs (Chen et al., 2020). In contrast, fan reviews in the crowdsourcing setting, submitted before manufacturing crowdsourcing products, aim to assess crowdsourcing design quality, which means FR is an ex-ante online review. Without FR, if the crowdsourcing designs are turned into finished products, they may not precisely match consumers' customized requirements, leading to consumers' reluctance to purchase, thus such crowdsourcing is a failure. To avoid such potential risks, some firms, including Xiaomi, have employed the ex-ante FR rather than post-purchase reviews to identify the quality of crowdsourcing designs (Li et al., 2021).

Generally, desirable crowdsourcing design quality would include input by all related members because each member (for example in the supply chain) plays a unique role in reappraising the crowdsourcing designs' values from various lenses. Specifically, crowdsourcers are in charge of hosting the crowdsourcing activities, and crowdsourcees contribute to creative solutions based on personalized requirements (Piezunka & Dahlander, 2019). Enthusiastic fans assess the proposed crowdsourcing design quality from the perspective of both ease of use and usefulness (Li et al., 2019). Manufacturers produce and comment from the perspective of production cost, manufacturability, ease of making, and recyclability. In this way, crowdsourcers enable a holistic and precise understanding of crowdsourcing quality. Afterward, the most desirable solutions are selected and put into production (Wong et al., 2021); some firms, such as Xiaomi and Suning, capitalize on the ex-ante FR in conjunction with the manufacturer's review (MR) to judge the crowdsourcing designs before mass production (Li et al., 2021).

In a setting with MR and FR information, crowdsourcers have two information-sharing schemes. One is the optional sharing scheme, wherein crowdsourcers determine whether to share MR with fans. The other is the mandatory sharing scheme, wherein crowdsourcers are mandated to share MR with fans and prospective consumers because, for some special scenarios, the outcomes of information acquisition must be shared with the public. An example of the sharing scheme is seen with Amazon's adoption of blockchain technology to guarantee that some crowdsourcing design information, from designer to supplier to end-users, is visible and reliable across the whole supply chain (Kadadha et al., 2021). Once the corresponding members engage in these blockchain-based supply chain systems, the quality information acquired from the providers can be traceable and publicly observable (Wu et al., 2021). Thus, whether the evaluations are favorable or not, the crowdsourcers cannot hide this information.

32 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/article/optimal-information-acquisition-and-sharing-decisions/337971

Related Content

Managing Temporal Data
Abdullah Uz Tansel (2009). *Handbook of Research on Innovations in Database Technologies and Applications: Current and Future Trends (pp. 28-36).*
www.irma-international.org/chapter/managing-temporal-data/20685

On the Implementation of a Logic Language for NP Search and Optimization Problems
Sergio Greco, Cristian Molinaro, Irina Trubitsynaand Ester Zumpano (2009). *Handbook of Research on Innovations in Database Technologies and Applications: Current and Future Trends (pp. 798-804).*
www.irma-international.org/chapter/implementation-logic-language-search-optimization/20765

Current Approaches and Future Trends of Ontology-Driven Geographic Integration
Agustina Buccellaand Alejandra Cechich (2009). *Handbook of Research on Innovations in Database Technologies and Applications: Current and Future Trends (pp. 481-490).*
www.irma-international.org/chapter/current-approaches-future-trends-ontology/20733

Querying Multidimensional Data
Leonardo Tininini (2003). *Multidimensional Databases: Problems and Solutions (pp. 252-281).*
www.irma-international.org/chapter/querying-multidimensional-data/26971

AFARTICA: A Frequent Item-Set Mining Method Using Artificial Cell Division Algorithm
Saubhik Paladhi, Sankhadeep Chatterjee, Takaaki Gotoand Soumya Sen (2019). *Journal of Database Management (pp. 71-93).*
www.irma-international.org/article/afartica/234278