Classifying user-innovators – An approach to utilize user-innovator asset

Kritinee Pongtanalert [a,*], Susumu Ogawa [b]

[a] Faculty of Commerce and Accountancy at Chulalongkorn University, Bangkok, Thailand
[b] Graduate School of Business Administration at Kobe University, Kobe, Japan

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ABSTRACT

Extant research underscored that user-innovators, especially those belonging to communities can be excellent collaborators with firms seeking new ideas. The two characteristics significant for commercial success are community membership and information disclosure. However, recent national surveys in Japan and the U.S. reveal that these characteristics are a part of the minority group of user-innovators. This study aims to investigate the differences in characteristics and motives between such a minority and the majority of user-innovators. We conducted a survey in Japan and classified 579 user-innovators into three groups – social, revealing, and silent innovators. Significant differences were observed in demographic variables, innovation adoption rates, and motives for product development. Based on the results, this study discusses how firms can effectively co-opt and integrate each type of user-innovator into their organizations' innovation processes.

1. Introduction

Existing research has indicated that innovations created by users can become significant and even lead the market (von Hippel, 1976; Luthje, 2004; Oliveira and von Hippel, 2009). Some users create totally new innovations from scratch while others, known as creative consumers, adapt and modify existing product offerings (Berthon et al., 2007). Collaboration with user-innovators yields commercial success for companies (Ogawa and Piller, 2006; Fuller et al., 2007; Antorini et al., 2012). Some user-innovators establish their own companies as their innovation became widely adopted and gained popularity (Shah and Tripsas, 2007). These evidences well attest users' capabilities in innovation and their contribution to the society.

One significant characteristic of user-innovators is innovation disclosure. In the producer-centered paradigm, producers attempt to protect their innovation in order to gain benefits from selling the products or innovation itself. In contrast, in the user-centered paradigm, users often voluntarily share information or reveal their innovations to colleagues, manufacturers, and even competitors (Allen, 1983; von Hippel, 2005). This character is significant for firms looking for new ideas as it is far less risky to commercialize a product that is already tested and approved by users.

Though producers often innovate independently, recent empirical studies have revealed that some users develop innovations in collaboration with other users. These users generally share similar interests and belong to the same

* Corresponding author.
  E-mail addresses: Kritinee@cbs.chula.ac.th (K. Pongtanalert), Ogawa@kobe-u.ac.jp (S. Ogawa).

communities – either offline or online – such as open-source software (OSS) and sports communities (Franke and Shah, 2003; Lakhani and von Hippel, 2003). Such community innovators reveal their innovations so that other members can further develop or improve the products (Franke and Shah, 2003; von Hippel, 2005). The participation of the community in the R&D process offers other advantages for practitioners because the community's reaction to an innovation can help firms predict the commercial attractiveness of user innovations.

Extant research has indicated that user-innovators, especially those belonging to communities, have high potential in successfully having their innovations adopted widely, and can be collaborators with firms looking for new product ideas because these users often disclose their innovations. However, recent national surveys in Japan and the U.S. reveal that those ideal figures are difficult to find. Merely 18% and 11% of user-innovators in the U.S. and Japan, respectively, revealed their innovations (Ogawa and Pongtanalert, 2011). Moreover, approximately 10% of user-innovators in both countries belonged to communities and less than half of them disclosed their innovations[1]. Berthon et al. (2007) also reveals that creative users often do not ask permission to modify firms' offerings and do not share the outcome of their innovations with the firms.

Once regarded as common characteristics, community belonging and information disclosure turn out to belong only to the minority group of user-innovators. However, no studies have ever shed light on these "majority" of user-innovators. Rectifying that omission in the literature requires broader exploration of their characteristics, motives for developing products, and differences between the "minority" and "majority" of user-innovators. A broad and representative sample is required to support general conclusions, because respondents from specific industries or cases may differ from user-innovators in general.

This study takes that required step by employing a dataset of 21,027 samples that include 579 user-innovators. We classify them into three groups – social, revealing, and silent – based on two characteristics: community membership and information disclosure. Each group exhibits different demographics and motives for developing products and disclosing information. We determine ratios for each type of user, which types R&D managers should collaborate with, and which approaches motivate and engage them.

2. Literature review

2.1. Innovation disclosure

User-innovators tend to share information or reveal their innovations to other users, their suppliers, or even their competitors. Franke and Shah (2003) discovered that in sports communities, members share their creations and/or provide assistance in the process of improving the functionality and quality of the innovation. In OSS communities, users publish their code in the community so that other users can find, use, and/or improve the code (Hertel et al., 2003; von Hippel and von Krogh, 2003). Morrison et al. (2000) found that 20 out of 26 library information software users reveal their innovation to their suppliers and other users. In the iron and steel industry, firms revealed their knowledge to other firms through informal disclosures and publications in engineering literature (Allen, 1983). In the medical field, surgeons revealed their new surgery methods at medical conferences, and these approaches were later adopted by other surgeons, ultimately becoming worldwide standards (Hienerth and Lettl, 2011).

There are various reasons why user-innovators freely share their innovations. First, it is difficult and costly to protect innovations (Allen, 1983). Applying for legal protections, such as patents and copyrights, is both lengthy and costly. For example, when users contact their suppliers or other users, who help develop the products, the information may leak to competitors or other unknown users.

Second, users may reveal innovations because they expect reputation gains (Allen, 1983; Harhoff et al., 2003). Linux developers are motivated to fix bugs in order to enhance their reputation in the eyes of the community (Raymond, 2000). Some expect companies to discover their abilities, so they continue to help the community modify the software (Lerner and Tirole, 2002).

Third, user innovators can avail a network effect when they disclose innovations (Harhoff et al., 2003). When users disclose their innovations, other users may adopt and further diffuse the innovations. Users' innovations can be a standard if their innovations are adopted (von Hippel, 2005). In the case of open source software, if users reveal, others can debug and improve the codes. Thus, their modules can be the standard version of the software.

Fourth, users reveal because they expect others to improve their innovations (Allen, 1983; von Hippel, 2005). Franke and Shah (2003) found that users in a snowboard community help one another improve boots and binding. Steel companies also share their innovations so as to discuss and improve how to use materials with others (Allen, 1983).

2.2. Belonging to a community

Recent research has disclosed that some user-innovators do not innovate independently. Rather, they belong to communities wherein members collaborate to innovate regarding products. von Hippel (2007) defined user communities as networks of interpersonal ties that provide sociability, support, information, a sense of belonging, and social identity.

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[1] The number of user-innovators who belong to communities and share their innovation is 42.9% for the U.S. and 45% in Japan.