



Behavioral intention formation in knowledge sharing: Examining the roles of KMS quality, KMS self-efficacy, and organizational climate

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ABSTRACT

Firms can obtain competitive advantages from their employees' knowledge sharing behaviors. This paper presents a research model to examine the direct and indirect effects of knowledge management systems (KMS) quality, KMS self-efficacy, organizational climate and attitude on the intention to share knowledge in the new product development process. The hypotheses are tested on data collected from 134 major electronic manufacturing firms in Taiwan, using partial least squares regression. The results of the empirical study suggest that attitude is the key factor influencing intention to engage in knowledge sharing. The more a factor (such as KMS self-efficacy and organizational climate) positively contributes to attitude, the more the factor contributes to knowledge sharing. The findings provide useful insights into how organizations should encourage employees' collaborative behaviors or activities so as to reinforce KMS self-efficacy create a favorable organizational climate that will in turn enhance attitude and intention to engage in knowledge sharing leading to benefits for the organization as a whole.

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1. Introduction

Knowledge sharing has become a key determinant of a firm's competitive advantage [3,11,91]. The primary objective of knowledge sharing research and practices is to facilitate effective knowledge flow among organizational members [65,91]. Firms must continue to improve their skills and competencies by accumulating and sharing knowledge [71,85]. To improve intra-organizational coordination, product quality, and firm performance, firms often demand that different organizational units such as production, marketing, and R&D departments implement common processes which often require the sharing of knowledge. Intra-organizational studies have shown that knowledge sharing is the fundamental basis for creating collective knowledge in intra-organizational networks [16,38,72,78]. Through knowledge sharing, differently functioning departments are able to build a jointly held knowledge base, which enhances mutual understanding [16,38,72,78] and improves coordination efficiency [72,90]. Knowledge sharing within a firm has become a common practice because it enhances the competitive advantage of the organization as a whole [3,91].

Knowledge sharing is particularly relevant in the new product development (NPD) process [93], because this process involves complex and interdependent tasks [72]. The product development process is composed of a series of activities involved in conceptual-

izing, planning, designing, and commercializing a product [14,95]. These activities involve a great amount of knowledge exchange [14,15]. The team members for NPD are often made up of multiple units such as R&D, marketing, production, sales, and purchasing. Knowledge sharing depends on continuous interaction and communication. Huang [52] proposed an evolutionary theory in which organizational knowledge creation is a self-organizing process, where knowledge is shared by means of interaction and communication flows between individuals, groups, departments, and organizational boundaries. Maruta [75] emphasizes that through knowledge sharing, individuals are able to access appropriate knowledge resources from others, and then create new knowledge by combining existing knowledge with their intrinsic insight. Insight refers to the capability to obtain a desired outcome through selecting appropriate knowledge and integrating it with related knowledge. Good insight and knowledge exchange activities will facilitate the realization of product innovation and productivity improvement [75]. In other words, successful teamwork in NPD projects depends on the interaction and knowledge sharing between team members, which leads to superior NPD performance [50].

To achieve the advantages of knowledge sharing, it is of strategic value for firms to understand the factors that affect knowledge sharing behaviors and cooperation during the NPD process. A review of the intra-organizational literature reveals that most studies of the relationships among the business units of a multi-unit company have focused on factors that directly affect knowledge sharing behavior, whereas few have examined the interactive effects that affect knowledge sharing and these relationships [14,42].

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Intra-organizational linkages and networks, which concern the maintenance of the relationships within a firm, are major determinants of competitive advantage [94]. Knowledge sharing is dependent on trade-offs affected by factors including attitude [13], organizational climate [59,70], self-efficacy [7,22], and information system quality [68]. It is widely accepted that the willingness to share knowledge is greater if parties have a close relationship. Thus, value-based relationships become an essential part of network cooperation, helping to bring different organizational units together to exchange resources and knowledge [94]. In the intra-organizational network environment, NPD requires cross-functional cooperation with abundant, frequent, and reciprocal sharing of knowledge [76]. Knowledge sharing by the NPD team can help with problem solving, design improvement, cost reduction, and production of a higher level of product [92]. To achieve the benefits of intra-organizational knowledge sharing, it is vital for all parties involved to be in a cooperative relationship [14,15]. Cross-unit collaboration in the organization creates and maintains the basis for jointly held knowledge through knowledge sharing, thus enhancing mutual understanding and expectations [18].

Recognizing the strategic importance of knowledge management (KM) and knowledge sharing, a great range of firms has implemented various KM initiatives. A knowledge management system (KMS) is a common solution [2,47]. KMS may play an important role in stimulating the knowledge sharing of the firm. KMS can be used to facilitate, generate, preserve, and share organizational knowledge [2,85]. Social cognitive theory suggests that self-efficacy regulates individual behavior and activities, which are based on forethought of the trade-offs between required effort and motivation [7,46]. When the motivation for executing a behavior (e.g., knowledge sharing) is adequate, high levels of perceived self-efficacy will encourage the pursuit of the expected outcomes and overcome the obstacles, meaning that the stronger the perceived self-efficacy, the more effort exerted towards knowledge sharing [7,46]. Institutional theory posits that institutionalization is the “social process by which individuals come to accept a shared definition of social reality” [88, p. 496]. Institutional theory emphasizes the relationship between the organization and the environment, and incorporates cognitive, rules, norms, beliefs shared by relevant members [26,41]. When the organization is inclined to form a climate of cooperation and reciprocal knowledge sharing, employees will comply with common organizational values [13]. This study draws on the KMS perspective, supplemented by social cognitive theory and institutional theory in its examination of which value-based relationships can improve the effects of related factors on knowledge sharing in an NPD context.

The primary focus in the majority of studies [71,73,102] has been on the KMS architecture, on the building process and on the mechanism for agent-based knowledge sharing. Liu et al. [71] presented a knowledge sharing community model and adopted an agent-based solution to perform the functions of knowledge sharing in virtual enterprises. Mahalakshmi and Geetha [73] proposed a “tarka”-based argumentative reasoning and discussion, where each member participates in discussions and gains knowledge through reasoning and inference. After every argument activity, the internal knowledge is updated and increased. Some KMS studies concentrate on the conceptual principles or case studies describing how such systems can improve firm performance. Quaddus and Xu [85] used qualitative methods to identify the factors leading to KMS diffusion and proposed a combined KMS diffusion model. Becerra-Fernandez [10] introduced and summarized various versions of People-Finder KMS. Gottschalk [37] identified the stages of KMS in police investigations. Lin and Huang [69] attempted to use task technology fits and social cognition to understand KMS usage. However, overall, empirical research on KMS related issues is still limited.

In other words, there is a scarcity of empirical research on KMS issues [24,39], and little is known about the implications of the inter-relationships between KMS factors and the organizational factors that influence knowledge sharing behaviors in networks and across unit levels. To address this important issue, we develop a new research model that treats attitude as a mediating factor for investigating factors influencing intra-organizational knowledge sharing. As such, we can examine how attitude interacts with other influencing factors to have impact on intra-organizational knowledge sharing.

The rest of the paper is organized as follows: the next section presents a brief review of intra-organizational relationships and knowledge sharing. In Section 3 the research model and hypotheses development are presented. Section 4 describes the methodology used in this research study, including the measurement and data collection procedure. The data analysis and results are presented in Section 5, including an analysis of the measurement model and test of the partial least squares (PLS) structural model. Section 6 includes a discussion of the results, and Section 7 concludes the paper and offers directions for future research.

2. Intra-organizational relationships and knowledge sharing

To improve NPD team coordination and enhance product quality, firms often demand that common processes be implemented by different departments such as R&D, marketing, and production, which requires the sharing of knowledge [14]. Inter-unit collaboration enables better knowledge sharing, resulting in greater competitive advantages for the organization. A primary objective of knowledge sharing is to speed up information flow [40], improve the efficiency and effectiveness of the NPD process, and respond more quickly to changing customers needs [50], which is essential to the maintenance of reciprocal relationships.

Intra-organizational networks are important for the maintenance of organizational competitive advantage [94]. Cooperation in the network is embodied in both the structure and the process of developing intra-organizational relationships, especially the exchange of resources and knowledge in the organization [93,94], which has been shown to result in better problem solving and improved performance [92]. Institutional theory and social cognitive theory, as related to organizational environments and individual capabilities, emphasize the development of value-based relationships in the organizational sharing culture and increased personal capacity. The establishment of a high level of knowledge sharing through close relationships among between units enhances the competitive advantage of the organization as a whole [15].

Social cognitive theory is a major theoretical perspective for analyzing individual motivations and behavior [46]. KMS self-efficacy is a specific application of the concept of self-efficacy, which is an essential determinant in social cognitive theory and is developed through individual learning and behavior [7,46]. KMS self-efficacy will affect individual behavior by influencing the individual's beliefs, attitude, and self-confidence in the face of obstacles in KMS related tasks [42,46,51].

In the organizational management literature, institutional theory is applied in an organizational setting [12,32]. Institutionalization is a means of instilling shared beliefs, offering intrinsic value to the organizational structure or process [88]. Institutional theory emphasizes that institutions affect common organizational values and behavior [53]. Therefore, the institutional context surrounding the organization regulates its decisions [6]. When the organizational climate is inclined to pro-sharing norms, the knowledge sharing behavior is encouraged [13].

In addition to social cognitive theory and institutional theory, a KMS success model is a key determinant for the assessment of

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