

Pricing Mechanisms for Knowledge Market Online: A Model-Based Analysis

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INTRODUCTION

Recently, Internet technologies have transformed the traditional landscape of business models and consumers' shopping behaviors. The use of technology in supporting knowledge management facilitates knowledge sharing activities and opens new capabilities in business processes (Islam, Jasimuddin, & Hasan, 2015; Jasimuddin & Zhang 2011). The population of customers who prefer shopping online is growing as they view online shopping as a convenient option that can save time and transportation cost. In addition, the proliferation of electronic intermediaries provides customers additional benefits such as consumer reviews, product (or service) comparison, and best price search.

Against the backdrop of the latest development in electronic business, recent years have also witnessed the steady growth of online knowledge markets where knowledge is treated as commodities. Potential buyers and sellers can meet in such a market to transact knowledge electronically.

Knowledge is widely regarded as a crucial component for enhancing the competitive advantage in business (Jasimuddin & Zhang, 2014; Jasimuddin, Connell & Klein, 2012; Jasimuddin & Zhang, 2009; Jasimuddin, Connell, & Klein, 2006). Various types of online knowledge markets specializing in assorted domains of knowledge and pricing mechanisms start to emerge in the economy. For example, Intota Expert Knowledge Services (www.intota.com) focuses on science and engineering, materials science, industry and technology, and business question answering. Experts-Exchange.com (EE) allows its members to ask for help with information technology questions within its network. Kasamba (www.kasamba.com) has experts in a field where customers can contact directly with their questions and a bid price. Allexperts (www.allexperts.com) offers confidential services and uses direct email to experts for customers' questions. SwapSmarts (www.swapsmarts.com) allows users to choose prices for their posted questions. Uclue (www.uclue.com) follows the prior business model of Google Answers. In contrast to the traditional transactions of physical goods, buyers set their prices for the "goods" (the knowledge) that they want to purchase, and sellers (knowledge experts) choose available offers from buyers to make transactions. At Uclue, customers post their questions and set a price, for example, between \$10 and \$400. Experts hired by Uclue browse all the posted questions and decide whether or not to answer the questions based on their own valuations. A question can only be answered by one expert, and once the answer is complete, 75% of the price for the question will go to the expert and the other 25% will remain with Uclue for its maintenance fee.

The growing importance and popularity of online knowledge markets present some interesting research topics regarding the working mechanisms to support their functionalities. This chapter makes contribu-

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tions along this line by investigating different levels of pricing strategies for an online knowledge market. First, we analyze a consumer's pricing strategy and identify two types of consumers on the knowledge market: *spin-off* and *mainstream* consumers, based on whether additional utilities can be derived from the knowledge market. Second, we identify the reasons of specifying minimal and maximal posting prices for an online knowledge market. It can be argued that a firm may be able to eliminate some spin-off consumers by designating a minimal posting price and increase its profit by mandating a maximal posting price. Third, we explore the optimal pricing strategy for experts, i.e., the proportion allocated to experts, by comparing different effects on market structure, transaction price, and the probability of questions being answered when the allocation proportion changes.

The chapter proceeds as follows. Next section reviews relevant literature from a perspective in knowledge market. The third section outlines an analytical model of online knowledge markets. The fourth section details our discussion, and the last section concludes the chapter.

BACKGROUND

This section reviews prior literature related to our research. As a starting point, we review the existing literature on knowledge market in organizations, electronic market and online knowledge market. Then we differentiate our study with prior research.

The principle of knowledge market has been recently applied to facilitate knowledge transfer within organizations, which has gained growing attentions from researchers (Zhang & Jasimuddin, 2008). Davenport and Prusak (1998) illustrate the concept of internal knowledge market within organizations, and propose to employ the necessary information technologies (IT) support and the indispensable incentives to build an effective internal knowledge market for knowledge transfer. Following the initial idea of knowledge market within an organization, Ba, Stallaert, and Whinston (2001) demonstrate that knowledge components can be optimally traded with a Grove-Clarke like mechanism within different bundles in an internal organization market so that a firm can optimally choose the knowledge bundles for investment. Desouza, Awazu, Yamakawa, and Umezawa (2005) develop a mathematical analytics to show the viability of the market mechanism for knowledge management in organizations. Mueller, Spiliopoulou, and Lenz (2002) formally consider the electronic marketplace as an approach to sharing knowledge assets and investigate the characteristics of knowledge as tradable goods on the e-marketplace within two types of frameworks: the pricing system and the quality evaluation method.

Drawing from the lessons from several cases, Desouza and Awazu (2003) explain the necessary components of an internal knowledge market, and outline several important caveats in association with economics literature when devising the market, including market of lemons, chicken-and-egg predicament, black markets, and advertising strategies. Zhang and Sundaresun (2010) study the mechanism of a knowledge market within organizations where sellers post signals about the knowledge they can sell to buyers.

Several researchers have investigated online marketplace. Most notably, Bakos (1997) regards an online marketplace as a special type of electronic marketplace, and proposes that electronic marketplaces reduce inefficiencies by lowering buyers' cost to acquire information about sellers' prices and product offerings. Bakos (1998) also adds that electronic marketplaces serve the role of matching buyers and sellers and facilitating transactions. Moreover, increasing differentiations and lower cost of product information can be observed in electronic marketplaces. However, there lacks research on online knowledge markets, especially how they function and what types of consumers they deal with.

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