INTRODUCTION

Although new technologies can generate opportunities for failing businesses or assist businesses in overcoming unfavorable conditions (Palo & Tahtinen, 2013), business models (BMs) remain the primary key to business success. Studies (Brettel et al., 2012; Afuah, 2004) have indicated that a BM is the source of business competitiveness, especially in consideration of the emergence of the Internet and major business trends toward electronic, optimized, and intelligent electronic commerce (e-commerce) BMs (Jiebing et al., 2013; Ghaziani & Ventresca, 2005).

The emergence of e-commerce has made globalization opportunities attainable for businesses and enabled entrepreneurs with limited capital to launch businesses. E-commerce is considered an effective program for micro entrepreneurship, business transformation, and globalization and the optimal solution for business paradigm shifts. The advent of an innovation economy has transformed knowledge into the most valuable corporate asset and a major driver of product and service innovation. Therefore, the determinants of enterprise success have shifted from external factors (e.g., market and competitive factors) to internal factors (e.g., dynamic innovation capability) based on enterprise core competences and knowledge, especially on the BM. Knowledge-based enterprises can convert intellectual assets (IAs) into currency through commercial methods such as sales, licensing, joint ventures, strategic alliances, mergers, new business entities, and donations (Skyrme, 2001; Sullivan, 2000; Wang et al., 2009). Trading and sharing knowledge with other enterprises can be more beneficial than using knowledge internally. E-commerce supports online functions such as transmitting, trading, and paying for products and services. In addition, an innovative BM called e-commerce-based knowledge commerce (k-commerce), which was developed for the real-time marketing and delivery of existing organizational knowledge over the Internet, enables the legal and rapid transfer of knowledge from owners to consumers.

Given a strategy that exploits the potential of the Internet and knowledge commercialization, almost any enterprise can benefit from k-commerce. Applying BM canvas method, this study investigated the conceptual k-commerce BM and knowledge value chain in an era of collaboration and innovation through the introduction of a k-commerce model and analyzed possible revenue streams and opportunities associated with k-commerce. In addition, the study examined related difficulties and infrastructure concerns, including models, methods, and technologies for practicing k-commerce. We also developed BM canvas-based construction methods for refining and improving the k-commerce BM or for matching the changing business environment with a different knowledge transaction model.
BACKGROUND

Few previous studies have investigated methods for improving or innovating BMs. Palo and Tahtinen (2013) used services based on novel technologies to develop an Internet BM; Hsia et al. (2008) proposed a target-oriented methodology for guiding businesses toward e-commerce application demands. Barquet et al. (2013) proposed a BM conceptual framework by performing a literature review for guiding entrepreneurs in analyzing their business environments, and Seidentricker et al. (2014) applied a morphological analysis methodology for describing and benchmarking BMs at all phases of idea development and prototyping.

Globalization alone cannot efficiently maintain global competitiveness, and enterprise competitive advantage and innovative growth can be realized only by using new BMs that are genuinely and appropriately open and able to support peer production, knowledge sharing, global mobile commerce, and collaborative innovation. Enterprises must effectively use external knowledge and innovation resources together with internal and external creativity or a market-oriented approach to create value by accelerating new technology and knowledge development (Chesbrough, 2003). For example, in a k-commerce BM, applying knowledge trading or exchange among enterprises introduces creativity and new technologies to enterprises, and sharing internal knowledge with business partners can reduce innovation costs and expedite research and development (R&D) on new knowledge and products. Successful knowledge-based enterprises require the ability to leverage internal and external enterprise intellectual capital and package it into high value-added, knowledge-based products and differentiated services able to swiftly and efficiently solve customer problems (Skyrme, 2001).

Enterprise IAs may include knowledge, customer relations, human resources, a social network, innovation capabilities, business strategies, decision-making competences, an operational network, organizational learning efficiency, a team communication mechanism, and brand image, all of which can facilitate wealth creation. Knowledge assets include knowledge analyzed from big data or business transaction data and knowledge acquired by tracing network-user behaviors on the Internet. Knowledge-based assets possess the following characteristics (Dominique, 2004): 1) nonphysicality, meaning that they frequently lack a material format; 2) uniqueness, meaning that they have values different from other assets; 3) concurrent usability, meaning that multiple users can use them at any given time; 4) value uncertainty; and 5) species diversity. Once the decision to commercialize certain knowledge assets has been made, the enterprise must be able to swiftly seal the licensing agreement and implement commercialization (Sullivan, 2000). Numerous real-world cases have demonstrated that knowledge used for external purposes often generates more benefits and business opportunities than does that used internally. However, precautions are necessary when using knowledge to generate benefits to prevent irreparable damage caused by the extensive use of corporate knowledge assets. Despite this caveat, some enterprises are still unaware of their own knowledge assets or marketability. When equipped with a strategy that combines Internet potential and knowledge commercialization, almost every enterprise can create revenues and opportunities through k-commerce BM.

The k-commerce BM remains flawed and frequently exhibits the following problems: 1) users experience difficulty in identifying required knowledge when inundated with information and knowledge; 2) methods or media through which knowledge producers and knowledge requesters can find one another are nonexistent; 3) methods for accurately evaluating knowledge reliability are nonexistent; 4) trust between knowledge trading parties is extremely fragile, increasing trading risks and reducing trading motivation; 5) knowledge is constructed in a substantially different manner than it was previously, with the permission of extensive collaboration and unclear knowledge ownership increasing the difficulty