The Emergence of Knowledge e-marketplaces

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Abstract. On line Knowledge e-marketplaces (Ke-markets) posses some special challenges for buyers and sellers. Unlike most markets, the product of exchange has some unique characteristics. It is mostly intangible, making it difficult for the buyer to assess and value beforehand. Its value is context-dependent, making it difficult for the supplier to price it in a transparent marketplace of multiple buyers with varied applications. Apart from buyers and sellers, Ke-markets need a market-making mechanism to work: the net market maker. This paper aims to show investigations made in Ke-markets, comparing some selected knowledge sharing and trading systems running on the Web. A specific methodology has been used. In this way it has been possible to compare different knowledge e-trading systems and their business models. Moreover, this paper presents first results of the conduct investigation, showing the further highlight research topic for ke-markets, distinguishing in Technical and Business issues.

1 Introduction

The B2B application space, which until now has been focused on goods exchanges and transaction systems, will evolve to embrace the inter-enterprise knowledge exchange [1]. This is the exchange of information in context, which is usable for decision making, as well as for learning [2]. E-commerce, the Internet, the on-line community are drivers for knowledge trading. Apart from buyers and sellers, Ke-markets need a market-making mechanism to work: the net market maker. As a minimum an online web site will need facilities to capture and process details of needs and offers. It may add intelligence that includes matchmaking capabilities and a set of business rules. These rules may filter out specific matches, based on personal preferences of buyers and sellers, or they may include rules for dynamic pricing to maximize revenues. They may even host order processing tools, account management facilities, and various delivery mechanisms, including online knowledge repositories and communities. In return, for providing these facilities the market maker will seek revenues from one or more sources, such as commissions from buyers and/or sellers, advertisers, sponsors, affiliate fees for successful referrals to complementary web site.

Chapter 2 introduces the emergence of Ke-marketplace as an evolution of e-business and a framework that aims to highlight the core aspects needed for installing and running knowledge marketplaces. Chapter 3 presents a review of selected Ke-marketplaces and a comparative analysis using the described methodology. Chapter 4 outlines the areas of research that need to be addressed in order to support knowledge trading.

2   The Emergence of Knowledge Marketplace

A K-market is the place where knowledge is traded. There are many situations where knowledge markets barely exist. When professionals and managers seek advice, their first port of call is usually someone in their knowledge network, for example a colleague or a peer in another organization. Established relationships count for a lot. Much existing buying of knowledge, especially that which is more people-based takes place through established supply chains. In many fields, K-trading is already an established activity. There are vibrant content industries like publishing and broadcasting, people based industries like management consulting (selling the know-how of people), recruitment agencies (trading in human capital), and markets in intellectual property, such as copyrights and patents [3]. These existing and established K-markets have started to shift into the Web: Intellectual property trading; recruitment agencies (Carrermosaic.com); management consulting (Arthur Andersen's Global Best Practices; Ernst & Youg's ERNIE, pre-merger); research companies (Nielsen & Gartner Group).

There are some financial (e.g. lower acquisition, transaction, marketing, and sales costs) and no financial (e.g. costs saving, revenue growth and time saving) *benefits* derived from participating in an e-marketplace, as: reach (how many products and customers a business can connect), richness (detail of information), affiliation (with participants, especially buyers). Complexity of determining *revenue model* is due to the dynamic nature of e-marketplace; hence it should continuously be adjusted. It is preferable that is a combination of fees. A key element is the e-marketplace ability to provide dynamic relevant content. The simplest and most common *e-commerce model* is the Catalogue, but in the dynamic commerce, the efficient market-pricing model, that enjoys popularity in the C2C space and B2B application, is the *Auction.* This occurs where exist: unique items, price volatility, fragmentation of buyers and/or sellers, high participant familiarity, new market opportunity, and lack of time criticality in purchasing. One of the aims of the net market maker is to determine adequate commercial and no-commercial *business communities*, which supporting Ke-markets with high liquidity. Knowledge is a framed, fluid, and action-oriented object, which is adapted and used by the user according to the situation [4]. Information objects can be packaged, annotated, valued, intertwined one another and traded via marketplaces: together they build the fundament for k-marketplace. The Business Media Reference Model (BM-RM) [5] describes "what" to model in business media, and the key elements of the Knowledge Trading Framework (KTF), it comprises different views that has been integrated with Strategic Orientation and Knowledge Assets. *Strategic Orientation* provides the business concept and model for the KTF. This leads to select a

specific "niche" (e.g. specific customer segment, specific knowledge domain, a capability/expertise niche, a service niche or a focused geographic location) and a viable business model. For most embryonic k-marketplace, there is insufficient knowledge of how realistic their business model will prove for their chosen niche. *Community View*, *Implementation/Process View*, *Transaction/Service View*, *ICT Infrastructure View* are described in [5], [6]. *Knowledge Assets*, distinguish between explicit (documents and databases) and tacit (in people's head) knowledge, customized or generic, free or fee, information-base or people based. The most valuable knowledge intensive services are those relying on personal knowledge. Specialist expertise associated with deep tacit knowledge, insights and experiences may be "producted" and be put on a knowledge marketplace. Factors that enhance value of Knowledge products are: timely, meta-knowledge, validate and assessed, accessibility and usability, customized, contextualized, connected, know-who, refined, marketed, pricing, transaction, related party information.

3   Survey and Comparative Analysis of Ke-Markets

This survey provides a comparative analysis and evaluation of Ke-marketplaces applying the Business Media Reference Model (BM-RM) used to define KTF. The investigated Ke-markets are *ExpertsExchange.com, Knexa.com, Yet2.com, HotDispatch.com*, *eWork.com*, and *CoS.com* (*Community of Science*) [6]. The results of the Comparative Analysis are shortly described. *Strategic Orientation*: K-marketplace tends to position as neutral, playing the role of an intermediary. Market access is one of the major advantages that k-marketplaces offer, especially for small business and individuals. The strategy followed by the market maker to attract participants can be or a "get big fast" strategy (to ensure the necessary liquidity) or a strategy that increases the transaction volume (as HotDispacth, Knexa, Yet2). A good brand name can be a successful element. The degree of affiliation describes where the power resides between buyers and sellers. The revenue model of Yet2.com is a combination of transaction fee, subscription fee, fee for VAS. ExpertsExchange's revenue model is based on subscription fee, advertising fee, and sales fees. That of CoS consists in subscription fee, and advertising fee. E-Work uses fees for VAS, advertising fee, and sales fees. *Community View*: In some cases the operation of a marketplace is determined to a certain degree by participants partners intending to serve their own interests better. In each examined k-marketplace exist the K seeker or buyer, the K provider or seller who owns a K-asset, others intermediaries, like brokers or trusted third parties or service providers, are included depending on the business model. Although all marketplaces comply with general legal rules, some of them, like CoS and eWork, don't fall in line with specific protocols such as Netiquette. Regarding disputes in most marketplaces surveyed the dispute is solved on an individual basis, but in some cases, as for HotDispatches, the arbitration is delegate to the specific country's arbitration rules. Apart from Yet2 and CoS the business transaction cycle is completed on-line. A space for social interaction is nurtured in two cases, ExpertExchange and HotDispatch. In Knexa autonomous communities may growth under the wings of the K-Agents. *Knowledge Asset View*: Vertical vs. Horizontal, Critical mass of content,

Seller/product validation/review, match-matching mechanism have to be focused on each specific industry.

4 Conclusions and Further Research

The challenges related to the development of knowledge marketplace form the research perspectives, distinct in technical and business research issues. *Technical research issues*. Knowledge is by definition highly context dependent whereas all explicit representations (at the seller side) will necessarily de-contextualize it to some extent. This means a complex product description. Flexible modes of user interaction (at the buyer side) are requested. So, no fixed navigation scheme or query interface should be used. *Business research issues*. Exchange of knowledge depends on communication, products and infrastructure, but it also requires clearly defined roles of actors and mutually agreed upon protocols. The *product quality* and finding *appropriate prices* for knowledge are challenging tasks, because intangible goods are notoriously difficult to value. Further researches will find out what pricing models are the best suitable ones for specific kinds of knowledge assets and trading situation, defining business models modeling in each different case. In conclusion, Knowledge Trading is a combination of E-Commerce and Knowledge Management, it is not only a logical consequence of both trends.

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