인터넷 포털 진화에서의 지식공유[*]

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Knowledge sharing in the evolution of Internet portals

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요　약

　본 연구의 목적은 지식기반관점에서 인터넷 포탈에서의 지식공유 유형을 분석하는 것이다. 또한 사용자의 지식공유 행태를 고찰함으로써 인터넷 포탈의 진화과정에 대한 통찰을 얻고자 하는 것이다. 이를 위해 먼저 지식공여와 지식수집이라는 2가지 차원을 기반으로 지식공유 유형을 제시하고, 한국의 주요한 인터넷 포탈에 대한 사례분석을 통하여 제시한 유형을 검증하였다. 연구의 결과에서 협업, 축적 및 출판이라는 3가지 유형의 인터넷 포털 지식공유 유형이 도출되었다. 또한 사용자의 지식공유 행태는 인터넷 포탈 진화과정의 주요동인으로서 작용한다는 것을 제시하였다.

Abstract

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The objective of this study is to explore a knowledge sharing typology for Internet portals based on knowledge-based view of firm. Furthermore, we provide insights into how the evolution of Internet portals takes place by describing user behavior of knowledge sharing. For doing this, we first present a typology of knowledge sharing based on the two dimensions such as knowledge donation and knowledge collection. Then we conduct case study of the Korean major portals to demonstrate a proposed typology. The main finding of the analysis is that three distinctive types of knowledge sharing patterns within portals are distinguished: collaboration, accumulation, and publishing. We conclude that user behavior of knowledge sharing is characterized as guiding factors in evolution process.

1. Introduction

Knowledge is a very important resource for solving problems as well as gaining competitive advantage [26]. Due to the characteristics of knowledge, the literature on managing knowledge within organization has been extensive and rich. As a part of knowledge management process, the sharing knowledge is considered to be power, especially in competitive environment, as Liebowitz [27] noted.

There are many previous research works related to the knowledge sharing. Much has been discussed with regard to the role of the information technologies on knowledge sharing activities as well as the mechanism for knowledge sharing. However, less of works has been focused on the knowledge sharing behavior which is influenced by knowledge donating and collecting attitude. We argue that understanding knowledge sharing behavior is one of the important aspects of the knowledge sharing activities as well as the whole knowledge management process.

Especially in Internet portals, understanding knowledge sharing behavior among users gives an opportunity for providers to elaborate strategy for portal evolution by allowing portals to easily lead customer participation as well as increase traffic to the portal site. The objective of this paper is to develop a knowledge

sharing typology for portals in terms of user behavior and conduct case study to demonstrate a typology with the drawing driving elements for portal evolution in line with distinctive types of knowledge sharing.

This paper is organized as follows. We begin with a brief review of the previous research on the knowledge sharing and Internet portal. Next, we describe the methodology used in this study and present a typology of knowledge sharing for Internet portals. And then, we conduct short case studies of Korean major portals in order to demonstrate proposed typology as well as draw driving elements associated with the portal evolution. Finally, we suggest future directions and challenges.

2. Theoretical Backgrounds

2.1 The knowledge-based view of firm

For many years, knowledge management has been considered as major research activities, as for example: the characteristics of knowledge, knowledge as a unique resource for gaining competitive advantage, and other related issues including knowledge based systems, knowledge management framework, and data mining applications [26, 37, 44].

There have been two distinctive flows in developing and implementing management strategy such as competitive strategy and resource-based view of firm. In contrast to competitive strategy perspective with an emphasis on external environment, internal resources are regard as drivers for gaining competitive advantage in resource-based perspective [2, 32, 35, 36, 41]. In resource-based perspective, a unique capability for comprising firm's core competence and gaining competitive advantage comes from organization's resources which are valuable, uncommon, poorly imitable, and non-substitutable [2]. Hitt et al. [22] argue that intangible resources including brand name, technology, and human power are more valuable than tangible resources to create a competitive advantage.

With an emphasis on intangible resources, knowledge is regarded as most attractive drivers which arise from combination of human context and information [14]. In the knowledge-based view, knowledge related resources including firms-specific knowledge and the tacit knowledge are significantly

highlighted in creating an organization's strategy [1, 17, 18, 24, 31, 39]. Knowledge has been regarded as most powerful source of value creation and can be categorized into two different types such as tacit and explicit knowledge [34]. While tacit knowledge is based on individual experience so that it is largely difficult to separate, store, and distribute knowledge, the explicit knowledge can be easily capture and stored [13, 31, 34].

Knowledge management is a latest form of strategy to create a new capability and performance based on individual experience and wide range of knowledge within organization [3, 29]. According to Choi and Lee [8], knowledge management activities have two major focuses: a codification which is based on the capability to codify and store knowledge in handling explicit knowledge, and personalization which is based on knowledge sharing through interpersonal interaction from the point of view of the tacit knowledge. A codification strategy would be to set in explicit form for collecting and storing in order to easily reuse organizational knowledge. A personalization strategy, in contrast, accounts for the tendency toward easily

communicating and sharing the knowledge through interpersonal interaction within organization [19, 20].

2.2 Knowledge sharing and portal evolution

Being one part of the building blocks of knowledge management, knowledge sharing is often characterized by a distinctive interpersonal communications and relationships between users. Knowledge sharing is defined as the process of identifying existing and accessible knowledge, in order to solve specific tasks better, faster and cheaper as well as considered to be one of the most important components for knowledge management process [9, 11]. Once users participate in this interaction, it becomes easier for organization to utilize knowledge and experience for developing and performing other related activities across organization. Not only is it possible to create a value with current services, but it is also possible to launch a new business successfully in competitive environment.

Although there have been many research efforts in the filed of knowledge management, yet relatively little research on the typology of knowledge sharing

mechanism has been focused [6, 12, 30, 36, 39]. Boh [5] presents the framework of knowledge sharing mechanism that consists of four components for project based organization in terms of two dimensions: codification versus personalization, and individualization versus institutionalization. Fernie et al. [16] argue that knowledge sharing context should be considered as a double-edged sword including host and receiving context. In line with Fernie et al., [16], Hooff and Ridder [23] define knowledge sharing process based on the both bringing or donating knowledge and getting or collecting knowledge as shown in Figure 1.
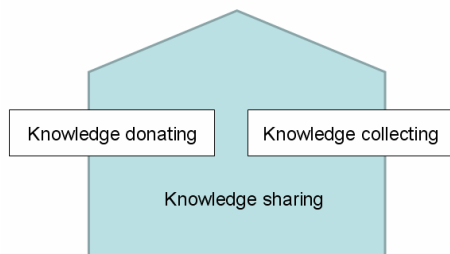

Figure 1. Two building blocks of knowledge sharing

Internet portal is defined as an entryway, the first page encountered before the user sailed into the web sea [10, 25]. The concept of portal was first introduced in 1979 and mainly derived from search engine function that is considered to be one of the most important capabilities of portals [10]. The typical services of Internet portal including contents, communication, community, commerce, and customization have been mainly derived from a search function and can be seen as the steps of portal evolution [42]. It is important for portal providers to present quality links and contents in order to make their portals sticky and open the opportunities for developing a further step of service in customer base [28, 38]. Thus, the relationships between users within or across portals would be expected to result in significant advantage in portal evolution.

In virtual community, knowledge sharing has been considered to be a important element, particularly in community of practice which is defined as a group of people who share concern, a set of problems and considered to be a way of viewing and understanding organizational knowledge sharing and social relationship [21, 40]. On the contrary, community of interests is focused on the sharing of knowledge on a topic of mutual interest, and usually observed in the Internet portals. According to Benbya et al. [4], an

efficient knowledge management process can be accomplished with the help of portal's ability to support various types of activities including publishing, personalization, integration, and collaboration.

3. Research Method

This exploratory research is designed as a multiple case studies mainly based on Yin's work [43]. Case studies are chosen when the problems are relatively unexplored and undefined and used to generate, describe, or test theory [15, 43]. In this paper, a user behavior analysis through knowledge sharing is a relatively sensitive matter, and would be well suitable to conduct case studies in line with developing a typology or framework. To investigate user's behavior in Internet portals, we first develop a typology of knowledge sharing, and conduct case studies to demonstrate it.

The development of typology for knowledge sharing activities in Internet portal is mainly inspired by the Hooff and Ridder's work [23], and derived in terms of two dimensions such as knowledge collecting and donating activities. In this paper, we define active behavior as the user's attitude which involve the feedback of collecting or donating knowledge in terms of evaluating and gathering all knowledge concerning their interests, while passive behavior which do not involve or lead the feedback.

The short case studies are conducted by using two major data sources such as archival documents or press accounts as well as the indirect observation techniques with insight into real phenomena. The unit of analysis for the case studies is the users who are participated in knowledge sharing within Internet portals. In addition, we define portal evolution in terms of the types of portal service such as contents, communication, community, and commerce services in order to investigate the relationship between the knowledge sharing behavior and portal evolution.

4. A Case Analysis
4.1 A proposed typology

According to Chatham et al. [7], organizations expect various types of payback such as customer royalty, sales, customer participation, and repeat traffic to the site through sponsoring online communities. Most commercial portals provide community of interest in which

information on a topic of interest or concern is exchanged. Compared to the community of practice, it is critical for providers to understand user behavior that collects and donates knowledge in order to increase traffics.

In this section, we present a knowledge sharing typology largely based on Hooff and Ridder's work [23] to investigate user's knowledge sharing behavior related with portal evolution as well as guide in conducting case study. We argue that two dimensions should be considered in knowledge sharing in terms of portal evolution: knowledge collecting behavior that is related to the user's attitude towards collecting needed knowledge and donating behavior that is focused on the attitude towards donating knowledge that users are concerned about. As shown in Figure 2 we present a knowledge sharing typology for Internet portals, which is composed of four components such as collaboration, accumulation, publishing, and accessing.
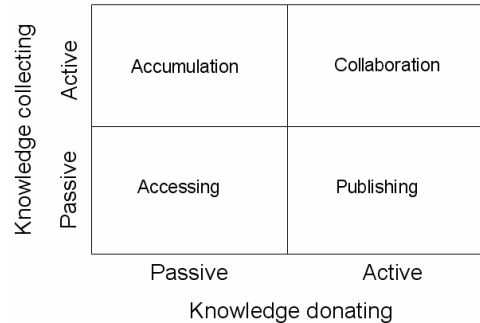

Figure 2. A knowledge sharing typology for Internet portals

In this typology, the left-hand side of the horizontal axis represents the passive donating behavior towards providing knowledge they have to other users while the right-hand side represents the active donating behavior through participation at the portal activities. Meanwhile, an upper-side of the vertical axis refers to the active collecting behavior through evaluating or gathering knowledge while lower-side refers to the passive collecting behavior through just accessing to the scattered knowledge. The concept of four components of knowledge sharing is introduced in order to investigate the characteristics of portal evolution in terms of different degree of participation in knowledge sharing activities. The characteristics of each component are described briefly in the following.

● Collaboration

This component is characterized by collaborative knowledge sharing which is fully facilitated by active collecting and donating behavior or capability across portal activities. In this component, users are usually open-mined in the community activities through enhanced relationships and prefer to rely on the knowledge from other powerful users than from distributed knowledge. The relationship between users has increased rapidly, thereby making it easy to launch various types of portal service based on knowledge sharing transactions. One way to increase knowledge sharing capability is to provide a focused question regarding user's interest in order to draw a credible or comprehensive knowledge from many other users that participate in portal community activities.

● Accumulation

In this component, users are eager to collect information from other users before donating activities and tend to search and accumulate personalized knowledge in order to enhance personal ability related to own interests. A collecting power can be increased by representing higher intentions to collecting knowledge concerning their interest as well as using specialized gathering service. The most important skill in this component is the ability to target and accumulate specialized knowledge according to user's intention. This ability enables the collected knowledge to be consistently enhanced according to more up-to-date criteria, thereby developing a wide variety of community service including blog by using collecting information. A common approach used in this component is to use specific program that is readily available for portal users and designed for information gathering activities.

● Publishing

This component refers to the state in which knowledge is strongly donated and published through intentional dissemination by using various distribution channels, especially through rich media including UCC (user created contents). These activities are performed by enriching user's blog or personal web-site regardless of the degree of user adoption and their exposure capabilities. Since the public issues and interests might be usually monitored and managed elaborately through making and uploading

activities, these activities can be extended in improving public opinion as well as creating an opportunity to provide commercial service based on user interaction. Both positive and negative responses can be used for sustaining user interests and developing commercial service by valuing site stickiness.

● Accessing

In this component, knowledge sharing is conducted by just browsing or accessing to the scattered knowledge without intention of collecting or donating. Without any deep interaction between other users, information is just scattered or exposed to any users on the portal.

4.2 Case studies description and analysis

Numerous portal services are provided in a different manner throughout South Korea. In this paper, we present three distinctive case organizations and analysis the knowledge sharing patterns as well as the relationships with the portal evolution by demonstrating a presented typology. The three case portals provide the community of interests which is named as 'Knowledge IN' of NHN, 'Knowledge TONG' of SK Communications, and 'Pandora UCC' of Pandora TV, respectively.

A 'Knowledge IN' service is operated as a type of bulletin board and provided by NHN, the South Korea's largest wired portal. Once one user uploads the questions into bulletin board, 'Knowledge IN', to collect knowledge and experiences which may contain user specific information, the answers are provided by many knowledge donators at the same time. Through this process, certain degree of 'reputation' will be offered to knowledge donators, which can be considered as the point of reference in cyber-activities in terms of collector's evaluation on quality of provided knowledge. In addition, other solutions have been proposed to interactive knowledge sharing problems. One of solutions is to adopt 'Power Knowledge IN' service in order to promote the possibility of interaction between donators and collectors, thereby increasing knowledge sharing transactions. A more personalized answer would be proposed by 'power donators' whose answers are being adopted by 85% above. These answers are considered as key influences among user's knowledge sharing transactions related to expert

knowledge, online shopping, and personal interests.

A 'Knowledge TONG' service is provided in line with 'NATE' and 'Cyworld' of SK Communications which is the largest wireless portal in Korea, and especially focused on the increasing of the knowledge collecting function through the searching other user's blog or web sites. A key benefit which 'Knowledge TONG' service offers is the ability to collect all the information in a quick and personalized manner by just installing tracking program, 'TONG Clipper' so that there is a significant advantage in collecting process, thereby reducing time and efforts required to establish relationships between collectors and donators. A 'Knowledge TONG' service is also characterized by powerful search functions which make it easily possible to classify and update acquired knowledge into 'Knowledge TONG' so that the community functions represented by relationships between users across portal's activities will be largely enhanced. A 'Knowledge TONG' service which is capable of collecting personalized information allows users to easily share knowledge through facilitate the use of updated knowledge in dept.

Since the knowledge in blog or web sites can be gathered easily through 'Knowledge TONG', there is no need for users to directly access the web sites or blog to collect knowledge. The brief flows of knowledge sharing through 'Knowledge IN' and 'Knowledge TONG' service are described as shown in Figure 3.
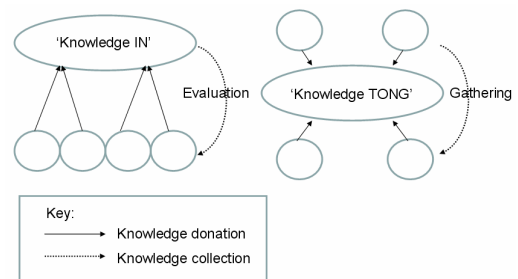

Figure 3. A comparison of 'Knowledge IN' and 'Knowledge TONG'

A 'Knowledge IN' service provides opportunities for portal providers to improve the quality of search and community functions through user's evaluating provided knowledge. This service is completely different from those provided by traditional portals in terms of interconnection levels which promise to run a knowledge sharing. Seamless integration between search and community functions makes increasing users' sticky of portals as well as the portal evolution

with a providing much richer business model such as interaction-based commerce service including online game service. Compared to 'Knowledge IN' service, a 'Knowledge TONG' service has the ability to improve traditional community functions through complementing community service with added search functions. Improved community functions through 'Knowledge TONG' service give an opportunity to develop community-based services including personal blog service.

A 'Pandora TV' is Korea's largest UCC service provided by Pandora TV Inc. since 2004. There are several limitations associated with knowledge collection in terms of lack of interaction between users. However, there are many practical advantages to being powerful knowledge donors due to the well-developed distribution channel as well as relatively rich information resources. Through a widespread distribution of knowledge users can easily access and view the knowledge that they would be interested in.

It also has the potential to produce more effective business models especially broadcasting-oriented service on the basis of unique available resources including Internet broadcasting platform.

Pandora TV's recent alliance with satellite DMB (digital multimedia broadcasting) providers is a good example of how unique resource can be used. The significant characteristic of Pandora TV in terms of knowledge sharing is the ability of the provider to easily donate knowledge in a one-way direction as well as the strong possibility of development for commercial applications by using broadcasting technologies. Figure 4 summarizes these considerations by showing how each service works in portal evolution process.
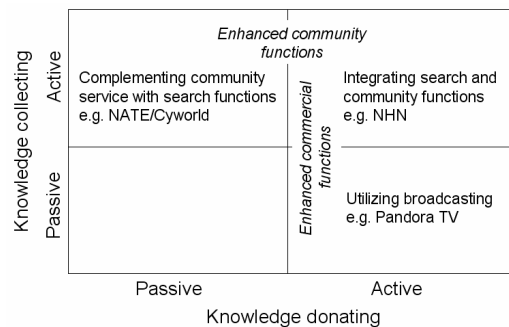

Figure 4. Driving elements for portal evolution

5. Conclusions

This paper presents a typology of knowledge sharing for Internet portals in terms of user behavior on the portals and demonstrates proposed typology with three short cases. By doing this, this paper

illustrates some of the drivers that are related to the stage of portal evolution which is divided into several different levels including communication, contents, community, and commerce. We believe that it is important to understand the specific patterns of user behavior of each component in developing and providing efficient portal evolution strategies. Moreover, a proposed typology would benefit from further development of portal's desired business model by elaborating or clarifying distinctive types of activities.

The main finding of the analysis from the comparative case study based on the typology is that knowledge sharing patterns within portals can be classified into four basic categories in which three types of knowledge sharing may be practically distinguished according to the user's behavior. Furthermore, the three case studies indicate that the driving elements for portal evolution can be characterized or specified by distinctive user behavior of knowledge sharing, acting as guiding factors in evolution process. The findings which are related to portal evolution are described in detail below.

First, there are two distinctive flows for portal evolution. We note that the community functions across portals can be enhanced mainly by both collaboration and collecting services, while commercial functions are largely dependent on both collaboration and publishing services, respectively. Second, the relationships based on two-way interaction such as collaboration and publishing services enable portal to easily develop further service by efficiently using primary activities. These primary activities are essentially concerned with donating knowledge and responsible for creating further opportunities to evolve.

In some ways, these findings are consistence with the Hooff and Ridder's work [23]. Though, it is relatively different in that the knowledge sharing patterns may be associated with the portal evolution patterns, especially in community of interests. The contribution of this paper is two-fold, related to typology generation and flows of portal evolution. First, we present a new theoretical framework, in the form of typology, which provides an opportunity to develop a portal evolution strategy based on the knowledge sharing patterns as well as the characteristics of

portal's community service. Second, we suggest that there are two main flows of knowledge sharing activities in the portal evolution by highlighting the relationship between users, which need to be identified and managed for promoting relationships.

Like the other studies, there are several limitations to this study. First, the case study is conducted mainly based on the indirect observation techniques as well as the archival resources with insights into real phenomena. Thus, more in-depth case study should be conducted through structured or semi-structured interview for demonstrating or validating the proposed typology as well as our findings. Another limitation concerns the limited number of Internet portals studied. The further studies require more case companies to generalize our findings beyond community of practice.

Further research could extend our study in numerous directions. First, one could use our proposed typology to investigate

how the driving elements of each component directly or indirectly affect the portal's evolution process. It also would be helpful to further constitute several propositions as well as conduct empirical investigations.

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저자소개

박승봉(e-mail: parks@chonnam.ac.kr)은 2005년 고려대학교 경영학과 박사 (MIS 전공)를 취득하고, 2005년부터 현재까지 전남대학교 전자상거래전공 교수로 재직 중이다. 관심분야는 E-비즈니스 전략, 전자지급결제, 지식경영, 정보기술의 비즈니스에의 응용 등이다.

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