

Personal knowledge management based on social software

——From the explicit and tacit knowledge perspective

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Abstract. The emergence of information technology has provided a powerful hand for personal knowledge management, thus the personal knowledge management goes on more convenient and feasible. This paper gave the summary of personal knowledge management as well as social software, and then analyzed the characteristic of applying social software in personal knowledge management from the explicit and tacit knowledge perspective, finally gave a model of applying social software in personal knowledge management.

1 Personal Knowledge Management

1.1 The outline of personal knowledge management

The 21st century was a knowledge economy time, the knowledge capital already becomes an important resources and the core capital in the social life, along with the development of computer network, the importance of knowledge management highlighted day by day. The knowledge management is a process to create value using knowledge and intelligence of enterprise and individual. It divides into organization knowledge management and personal knowledge management, Professor Paul A.Dorsey, an expert on personal knowledge management research, said that personal knowledge management is the basis and origin of knowledge management. And we also hold the same opinion.

Personal knowledge management is a conceptual framework to organize and integrate information that we, as individuals, feel is important so that it becomes part of our personal knowledge base. It provides a strategy for transforming what might be random pieces of information into something that can be systematically applied and that expands our personal knowledge^[1].

Professor Eric tsui, the chief researcher in CSC Corporation and holds part-time jobs in Imperial Melbourne University of Science and Technology, pointed out that, “personal knowledge management is a continual process; individuals must do various works, such as gather, classification, collection, to ascend their personal knowledge in daily life. These activities not merely limit in the commercial and work, but also include individual interest, hobby, and leisure activity.”^[2]

Based on these, we may interpret personal knowledge management like this: under the information technology condition, individuals gain and process the information that they need, no matter where they are, and gradually establish their personal knowledge library, which is useful for the storage, use, communication, share and innovation of personal knowledge, at present and in future. In this process we should pay great attention to the share and innovation ability, which is the most important in personal knowledge management, so to explore individuals’ maximum potential.

1.2 Necessary of personal knowledge management

“We live in the sea of network data material, but endured the thirsty and hunger of knowledge” this speech described the awkward situation vividly when the cyberspace main body faced the massive information on the Internet. The information overload in modern society causes us to exclaim at information’s huge as well as leaved us in the situation of not knowing how to pick and choose the useful. We often slide into another subject homepage in carelessly that the material is irrelevant with which we search, which wasted time of normal study and work; When we need some material urgently, we couldn’t think clearly where we place it before; we want to search some useful thing, but in fact, the “rubbish information” the Internet provides is much more than the useful, we have to take time and energy to identify, in the end we ourselves forgot what we want to find at first. Therefore it appears to be especially important how to pick the useful knowledge from the abundant information and how to transfer them into ourselves’ personal knowledge. Moreover, the request of information literacy in e-learning times also demands us to grasp certain method on personal knowledge management. A person who has information literacy should be a knowledge manager first. Only if we learned to manage our personal knowledge effectively, absorb the beneficial knowledge, carry on the critical thinking, use professional technology proficiently, withdraw the knowledge form ourselves’ knowledge library, share them with everybody, and share others’ knowledge simultaneously, then can we learn to study, possess information literacy and become an independent lifelong learner.

Bill Gates had said: “the way of collecting, managing and using information, decided your victory”, this speech gave a rather good annotation to the importance of personal knowledge management. Personal knowledge management can help

individuals absorb the necessary knowledge pertinently, foster their habit and consciousness of lifelong learning, build the foundation for individuals' knowledge study and ability promotion, thus enhance individuals' specialized skill and competitive power.

2. Social Software

2.1 Definitions of social software

Scholars in and abroad have discussed the definitions of social software from different views. Stewart Butterfield defined it as a tool for people's communication, which has following traits: individuation, participation, Interpersonal relationship, bargaining and colony. LeeLe Fever believed that, the common software connects the human and computer as well as the network, but what the social software connect are people's thought, sentiment and viewpoint.^[3] Stowe Boyd proposed that, the social software should meet with one or several premises, such as supporting interaction dialogue between individuals or among communities; supporting society feedback activity, for example, community can make appraisal on other people's contribution, then form "the digital prestige", supporting construction of society network, helping people establish and manage the new digitized interpersonal relationship.^[4] Mao Xianghui (2003) pointed out that the social software meant "the individual brings the software to become a part of social network". Some researchers also expressed: "The social software is a tool helping people establish social network and automatic community or organization" and "social software pays more attention on the affiliation people established than the software technology itself".^[5] It accorded with what SunirShah stressed, the correct definition needs to stress on a human's side, by no means a technical side. He believed that the fundamental rule on software originates from human's characteristic, not the area of technology. In fact, the social software stress the attribute "the society", it indicated society's individuals can construct social relations by software tool. The theory foundations of social software are "six degrees divisions" and "150 principles".

2.2 Connotations and characteristic of social software

There are three connotations of social software: First, it is individual software, a tool for individual network; second, what it constructs is the social network, including weak link, middle link and strong link; finally the social software is the unification of individuation and sociality.^[6]

In the use process of social software, people pay more attention on social relations. Therefore, the characteristic of it includes: the software reflects the social network in the using process, both strong link and weak link have the intensity trust; form a team and a self-organization; individuals centered, user's status and trust can

be manifested in the software; The software itself renews and self-develops unceasingly; Initiative participation into community.^[7]

The social software took the realistic social relations as the foundation, simulated society's real interpersonal relationship network, brought a new pattern to social association, changed the way of knowledge disseminating, thus the gathering of knowledge and information became rather feasible and convenient. For example people may contact with each other promptly through IM, discover the network domain expert and what they pay attention to, or their research content through BLOG quickly, they may also promote the speed of information acquisition and renewal greatly by using the RSS news microreader. People can record fast, reorganize quickly and share simply on BLOG and WIKI, which favored the accumulation and sharing of knowledge; the social software may possibly become a kind of new media, form an interpersonal dissemination network. The social software perform the collection and fast dissemination of information through different participants, and the participants inform and are informed ,convince and are convinced through social software.^[8]

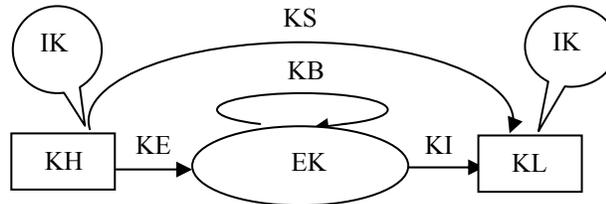
3.Model design of social software applied in personal knowledge management

3.1 Present situation and characteristic of social software boosting personal knowledge management

Now the commonly used personal knowledge management tools include: iSpace Desktop (personal information management system), iNota (personal knowledge management), Mybase (documents resource management software), 360doc individual library (knowledge management and cooperation platform) and so on. The software have characteristic and function respectively, for example, the function modules iSpace Desktop provides include: Address book, documents management, knowledge classification, program record, program browsing and Blog and so on; The 360Doc personal library provides includes: knowledge management, association cooperation, and can produce the article abstract automatically, automatically establish the connection between content- correlation article, automatically recommends articles according to the cyberspace main body's collection interest, which used artificial intelligence technology based on the semantic understanding, These tools are serviceable, can satisfy the demand for personal carrying on the knowledge management.

The connotation of knowledge management includes: content, activity and value, its core is the knowledge activity, but the core of knowledge activity is knowledge process. Professor Ikujiro Nonaka and Tadeuchi, experts on knowledge manage in Japan thought that knowledge has formed a knowledge screw which grew unceasingly in the transformation of explicit knowledge and tacit knowledge; the knowledge will have the type transformation by processing socialization,

externalization, combination and internalization. It is helpful for realizing the four processes by using social software.



(EK= Explicit Knowledge IK=Implicit Knowledge KI=Knowledge Internalization KE=Knowledge Externalization KS=Knowledge Socialization KB=Knowledge Combination KH=Knowledge Holder KL=Knowledge Learner)

Fig 1. screwing theory of knowledge conversion

3.1.1 Knowledge Socialization

The knowledge socialization is a conversion process from tacit knowledge to tacit knowledge. Generally speaking people produced new tacit knowledge by sharing experience. The birth of social software enables the cyberspace main body to be able to establish virtual knowledge community, realize the knowledge socialization at a wider range. The individual can share the tacit knowledge by social software, and may pass them by observation, experience and practice. That Priest and disciple models, a new comer learn experience and skill from senior colleague, people make conversation or discussion about a main subject are all the typical way that individual shares tacit knowledge. Knowledge socialization is the beginning of knowledge creation, dissemination and sharing. People can share the experience that cyberspace main body accumulated among others by using social software, most of which is “only be possible to get an idea but cannot explain”, they can communicate and discuss with each other freely, realize knowledge sharing and knowledge innovation.

3.1.2 Knowledge Externalization

Knowledge externalization is a conversion process from tacit knowledge to explicit knowledge. It mainly uses the method of analogy, metaphor and supposition, listening attentively as well as deep discussion to transform the tacit knowledge to an easily understanding form. The birth of social software, made this transformation more convenient, BBS, Blog and wiki can transform the knowledge that the individual accumulated for a long time and cannot be expressed by language, especially the knowledge that cannot be transferred at a large scale, to a principle and ordered knowledge that can be easily written down and easily learnt. We may save the different subject individual documents and information resource by classification in social software, build our knowledge library in practice, and may have inspiration

and new understanding in the process of sharing and communication, thus realize knowledge innovation.

3.1.3 Knowledge Combination

Knowledge combination is a conversion process from explicit knowledge to explicit knowledge. It's a process of knowledge expansion, usually to make fragmentary explicit knowledge be further systematized and more complicated, form a huger explicit knowledge system. Combining the fragmentary knowledge, and expressing them with specialized language, is the combination process of knowledge. In the combination process, individual knowledge rise as collective knowledge, and may create value for more individuals. For instance we may collect, reorganize and learn knowledge from many origins, and find some new discoveries, thus obtain new knowledge. The main challenges in this process are: the massive knowledge is monopolized or hidden, it's difficult to search and integrate the knowledge existed in different medium. The social software may combine the knowledge by issuing, editing, estimating and discussing, causes knowledge to disseminate widely, achieves the goal of knowledge sharing, thus let the cyberspace main body form a higher value knowledge system.

3.1.4 Knowledge Internalization

Knowledge internalization is a conversion process from explicit knowledge to tacit knowledge. Internalization is a process the explicit knowledge are combined, assimilated by the individual, they use it in daily life and work or study, then transforms them to individual's new tacit knowledge, and presented it as the individual's ability. Enriching one's knowledge through reading massive books is a good example. Without doubt, social software provides a good supporting platform for knowledge internalization.

The knowledge process is climbing along the knowledge screw unceasingly, to achieve the goal of knowledge innovation. We can easily see it form the above analysis, using social software can promote knowledge gathering and processing, storing and accumulating, disseminating and sharing, expanding and innovating. The social software using process is a process that the explicit knowledge and tacit knowledge stimulate each other. Along with the unceasingly expansion of social group which established by social software, this process will move in circles, rise as screws, personnel's knowledge library will also be enriched and optimized unceasingly.

3.2 Model designing of social software applied in personal knowledge management

The construction learning theory believed that, learning is the process of meaning construction to exterior thing gradually when human interacts with them mutually. It emphasized on the students' initiative construction of knowledge, student's independence and innovation. The social software has provided exactly a very good platform for the construction learning way. The cyberspace main body will be able to

integrate the study process and free communication through social software, gain each kind of dynamic informal knowledge quickly and conveniently.

The social software help people to establish the social network and the automatic organization and community, it can promote communication, exchange and cooperation between people's. After the influence software as QQ, email and BBS, Blog also grows like mushroom, according to the Xinhua News Agency reported ,up till now, the whole world Blog at present (network diary) reached 70,000,000; Every day increases about 120,000 equally, that is increasing 1.4 each second^[9], the interpersonal network service Yiyou(www.yeeyoo.com) and Heiyou (www.heiyou.com) which based on the wireless correspondence and the Internet technology, rises rapidly and receives trillion web cam's favors. The social software has provided the friendly support for the study, it complements one another with the study occurrence and the knowledge transformation; It has opened up individuals' study space, brought more study resources and study channel, urges people to share the knowledge, stimulate knowledge innovation, raises the individual information-handling capacity and cooperation ability. The author has constructed personal knowledge management model based on social software as following.

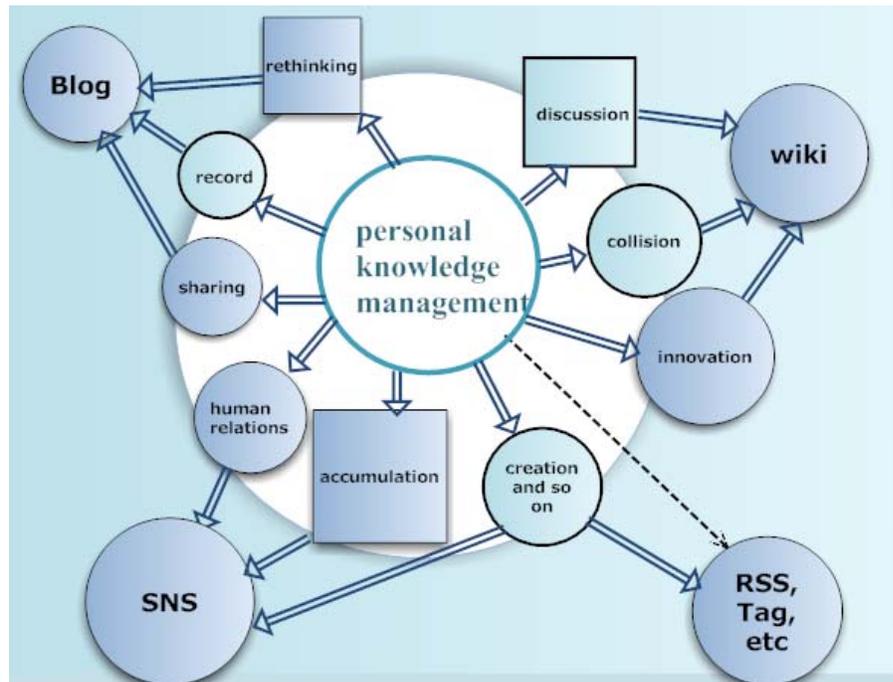


Fig 2. model of personal knowledge based on social software

Blog is a kind of running water recording form in the network, it can be easily used and quickly renewed, classify automatically and perform knowledge management;

its characteristic is sharing and interaction, spiritual sharing and communication demand is the two big backbones why Blog developed. Blog is the combination of individuation and sociality, so people can exhibit themselves and communicate with others freely. The realization of knowledge gaining, recording, sharing and reconsidering that personal knowledge management need may all get supported in Blog.

Wiki aims at the expansion and intensify on the identical subject; it mainly pursues the integrity, sufficiency and authority of information. Any cyberspace main body must comply with the subject wiki determined. The study individual may launch the discussion on some subject in wiki social group, by contrasting and analyzing the viewpoint of their own and other people, the original cognition structure of cyberspace main body will readjust and promote, and the individuals' knowledge will be supplemented and enriched, thus the new viewpoint will burgeon. In the process of collision and communication of thought, the cyberspace main body may carry on the management to their personal knowledge effectively.

SNS is a kind of social network service, mainly used for managing personal relationship. We generally thought the learning activity occurred only when going to school or taking regular training. In fact some experts' studies indicated that, in human's knowledge growth or the occurrence of learning activity, only 20% knowledge occurs in the formal study process, 80% occurs in the informal study process. Such as chatting with friends, watching movies, glancing over some homepages through the network and so on, all these are informal learning activities. The cyberspace main body can manage personal relationships through SNS, expand the knowledge origin, thus the occurrence of informal study will be more simple and frequent, and the individual knowledge library will also be enriched.

Except for these, we also may carry on knowledge storage and creation through other social software like RSS, Tag and so on. To summary, the social software enables the cyberspace main body to be able to participate in the study initiatively, extract the resources of specialized knowledge effectively, cooperate positively, obtain the newest information promptly; It can also promote the personality development, let them experience success, share joy, improve individual's learning capability and cognition ability better, it is apt to form the innovation thought, thus enhance the efficiency of personal knowledge management.

4 Epilogues

There are many successful cases that the social software used in personal knowledge management^[11]. The social software constructed a learning environment centered on individual. The cyberspace main body writes, records, thinks, enjoys, studies, creates through social software, they can have initiative participation, carry on cooperation learning with other people, integrate in the social group, become the master of learning, this initiative and enthusiastic learning process can promote personal knowledge management quite well. Of course, there are some challenges that we must face, such as how we can fast go to the appropriate information, how we can

convert between study and practice; these are the tactic problems of personal knowledge management.

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