Research on Knowledge Transference
Management of Knowledge Alliance

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Abstract. Knowledge alliance is the necessary for new era businesses, and knowledge transference has largely affected the Alliance's decision-making and behaviors. Based on the two companies form of alliance the paper makes the game analysis of knowledge transference, and then through the analysis shows how the knowledge alliances to manage knowledge transference and make management decisions. This paper researches on how to manage knowledge alliance well. Research finding, for guiding enterprises through the effective use of external knowledge of business alliances to enhance the competitiveness, for guiding the Alliance to effectively manage knowledge transfer in order to promote enterprise development, has important application value.

Keywords: knowledge alliance, knowledge transference, management.

1 Introduction

According to the transferability of knowledge, knowledge can be divided into explicit knowledge and tacit knowledge. Explicit knowledge can be used by formal language, including procedures, mathematical expression, plans, manuals, etc, recording these to transfer and share. Companies in advantages of explicit knowledge are more easily imitated by others, and then relatively weakened. Of course, companies can also learn explicit knowledge they need from other companies, which can be integrated with existing knowledge into new knowledge. Tacit knowledge refers to not be clearly expressed by a system or dominant language, which can be called only not words but meanings. In business, experience, skills and mental models are important asset of enterprises, also the most core ability of companies. Because of this knowledge is often implicit, it cannot easily be imitated. It is the most lasting competitiveness of enterprises.

Knowledge alliance, a risk-sharing network, with other enterprises, universities and research institutions through a variety of contract or equity shares complementary advantages and risks, during the process of achieving the strategic objectives, in order to share knowledge resources and promote knowledge flowing and create new knowledge. The purpose is to learn and create knowledge. Alliance partners can not only get the experience, ability and other tacit knowledge market transactions cannot do, also, by the complementary knowledge, they can also create new knowledge a single enterprise cannot, so that alliance partners benefit.
The concept of knowledge transference was first proposed in 1977 by Teece, U.S. technology and innovation management theorists. He believes that the international transference of knowledge can help companies accumulate valuable knowledge and promote technology diffusion, thereby reducing the technology gap between regions.

2 Analysis of Knowledge Transference Using Game Theory

In the internal knowledge alliance, alliance members continue to carry out the transfer of knowledge, because of the different total knowledge leading to the potential difference. It can not only improve total knowledge of union members, also do well to the increase of total union knowledge. From the view of economic, knowledge transference can occur or not, depending on expected benefits from the main body of knowledge. The introduction of knowledge is often accompanied by the consumption of resources, which means knowledge transfer requires to paying price. Knowledge transfer can take place only knowledge transference obtained an expected return greater than the process of knowledge transference cost paid. In addition, the main body’s subjective consciousness and objective state of knowledge transference will have a major impact on knowledge transference.

In order to analyze conveniently, this paper analyses knowledge transference between two main body’s behaviors, game of several main bodys can be done so on.

Assuming the two companies for A and B, the total knowledge of the two companies were $U_A$ and $U_B$. In the process of knowledge transference, the absorption capacity of A is $a$, and B is $b$, $0 < a < 1$, $0 < b < 1$. Knowledge transference is $U$ generated by alliance, and condition of $U$ is integration knowledge of two companies, that is three possibilities: ① A obtained knowledge from B; ② B obtained knowledge from A; ③ A and B companies jointly acquired knowledge. A occupies knowledge exclusively in the case of ①, and B occupies knowledge exclusively in the case of ②, and A, B share knowledge in the case of ③.

Suppose A transferred knowledge, but B did not, so that the income of B is $U_B + b(U_A + U)$. B received additional revenue but no knowledge transference, and A transferred knowledge but no receive additional revenue, thus this situation is some loss for A, though this loss is psychology. Suppose the loss is $k$, so the revenue for A is $U_A - k$. Similarly, if B transferred knowledge, but A not, the revenue for A and B is: $U_A + a(U_B + U), U_B - k$. If A and B selected transference both, then the revenue for A and B is: $U_A + a(U_B + U), U_B + b(U_A + U)$. On the contrary, if A and B did not select transference, then the revenue is $U_A, U_B$. Game payoff matrix of knowledge transference for A and B show table 1.

If A selected knowledge transference, then the choice of transference or not was same for B—$U_B + b(U_A + U)$. If A selected non-transference, then the revenue $U_B$ of B selecting non-transference was greater than the revenue $U_B - k$ of transference, so the non-transference is B’s strategy. If B selected knowledge transference, then A had the same revenue $U_A + a(U_B + U)$, no matter of transference or not. If B selected non-transference, then the revenue $U_A$ of A selecting non-transference was greater than