

A Study on the Management of Platform Enterprises Based on Knowledge Perspective

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ABSTRACT: *In the context of the knowledge economy, economic development is increasingly dependent on the effective use of intangible assets such as corporate knowledge, skills and innovation potential. In order to promote the transfer of value-added and interconnected resources such as knowledge, many enterprises have adopted a platform-based construction and transformation strategy to connect different groups through network effects and integrate multiple resources to meet unmet needs. This paper first analyzes the connotation, characteristics and necessity of knowledge management of platform enterprises, and then stands at the perspective of knowledge management process, from knowledge recognition and acquisition, knowledge integration and creation, knowledge sharing and application, and knowledge. The four links are stored to describe the whole process of the platform enterprise from knowledge input to output, and summarize the requirements in the knowledge cycle. Finally, for the needs of knowledge management, the leading force of transforming knowledge generation and reconstruction organization are proposed. Suggestions for culture, optimization of organizational structure, and improvement of technical means for reference by platform enterprises.*

KEY WORD: *Knowledge Management, Platform Enterprises, Knowledge Needs, Knowledge Flow*

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I. INTRODUCTION

With the continuous advancement of the new industrial revolution, the production mode and operation mode of enterprises have undergone great changes. The new economic mode represented by the sharing economy and the new scientific and technological force dominated by artificial intelligence cloud computing have jointly promoted the transformation of enterprises from traditional linear enterprises to platform enterprises. Platform enterprises connect two or more value creators with value demanders by establishing a platform. While meeting the accurate needs of demanders, they can realize the resource complementarity of multiple enterprises and replace the original vicious competition with win-win cooperation ^[1]. However, platform enterprises are faced with a complex and changeable environment and a large number of stakeholders. Therefore, special knowledge management technologies and models are needed to deal with the problem of interest distribution and long-tail effect ^[2] in two-sided or multi-sided markets and promote the good realization of network effect ^[3]. Socialization of knowledge generated subject sea quantification and the professional characteristics, lead to recognition of knowledge and acquisition to create a sharing and application integration and link management more difficult, therefore, this article will from the perspective of the knowledge management process, starting from the above four links, the whole cycle process of platform enterprises from knowledge input to output is described, and for the difficulties in the implementation of each process, the participants, organizations and enterprises of the entire platform, and even the countermeasures that the country can take are proposed for the realization of enterprises, which provide a reference for upgrading and transforming to enhance the core competitiveness of the enterprise.

II. THE CONNOTATION, CHARACTERISTICS AND NECESSITY OF KNOWLEDGE MANAGEMENT OF PLATFORM ENTERPRISES

2.1 The Connotation of Platform Enterprises

Several scholars at Boston University and Tulane University divided the enterprises into a linear enterprises and a platform enterprises. The former is involved in the creation of core values for end users, the latter is not involved in the creation of core values, but the creators and users of core values are linked ^[4]. Platform enterprises gather the demand side and supply side of the market in high-value trading enterprises, and do their best to provide a full range of quality services for all related parties on the platform, which promotes the platform participants and derivatives, and thus promote more interaction between stakeholders and finally create network effects.

2.2 Characteristics of Platform Enterprises

Compared with traditional linear enterprises, the environment faced by platform enterprises is more complicated, mainly including the differences in policy environment, technical environment and market environment, as described below, in terms of policy environment: Platform enterprises are now in their infancy, and their development models are diverse and unstable. Many development problems are exposed. In order to ensure the stable and well running of the industry, government and other regulatory agencies will issue more comprehensive policies and other guidelines, it is recommended that the number is relatively large, so whether the favorable policies will affect the development of platform enterprises^[5]; In terms of technology environment: nowadays, when is in a world of information explosion and technology surge, the platform is a network relationship, which mainly provides the underlying technology of the network. Therefore, the platform requires enterprises to keep up with cutting-edge technology and improve technical flexibility; In terms of market environment: The market faced by platform enterprises is two-sided or multi-sided. Platform enterprises need to attract one or more groups of participants with different functional roles to participate in the transaction on the same platform. Therefore, the number of customers of platform-type enterprises is relatively large, and there are many types. The customer's needs are more and more diverse and personalized.

In addition to the complexity of the above environment, linear enterprises and platform enterprises also show the following differences^[4-5]: ①Management Objects: the main management objects of linear enterprises are physical assets, and the management objects of platform enterprises are intangible knowledge assets, which determines the importance of knowledge management of platform enterprises; ②Management Objectives: The objectives of management from only optimize the internal system to focus on the externality of the network and the network effect achieved by internal and external interaction; ③Strategic Core: In the development process of linear enterprises, they often show competitive relationships with other companies. The core strategic is to enhance product competitiveness, to improve the ultimate value of customers and to occupy the advantage in the market, while the core strategy of the platform enterprises is to build a sustainable cycle ecosystem to realize the realization of the value demands of multiple groups in the entire system. ④Knowledge Subject: The source of knowledge for linear enterprises is mainly employees within the company, while platform enterprises have rich sources of knowledge due to the diversity of connected subjects. To sum up, the differences between linear and platform enterprises are summarized, as shown in Table 1.

Table 1: Comparison of Characteristics between Linear Enterprises and Platform Enterprises

Characteristics	Linear enterprises	Platform enterprises
Market Type	Single-sided markets	Two-sided or multi-sided markets
Management Objects	Tangible and intangible assets	Intangible intellectual property
Management Objectives	Optimize internal systems	Focus on network externalities and internal with external interactions
Strategic Core	Customer ultimate value	Ecological cycle value
Knowledge Subject	Internal staff	Stakeholders
Environmental Complexity	Lower	Higher

Data Source: The author arranges by himself

2.3 The Necessity of Knowledge Management for Platform Enterprises

It can be seen from the characteristics of platform enterprises described in 1.2 that platform enterprises are more complex and changeable than the linear enterprises in terms of political environment, technical environment and market environment, and the number and types of stakeholders they carry are relatively large. If enterprises want to maintain a competitive advantage in a globalized, fast, and dynamic environment, they have to think about how to implement effective knowledge management.

Platform enterprises are in an open environment, and the coexistence of diversity has created their knowledge subjects and environmental responsive activities to occur at a higher frequency^[3]. The main stakeholders carried by the platform enterprises gradually tends to socialization and diversification, the number and types of main stakeholders are becoming more and more diverse, and the needs of the main stakeholders are more complex ,diversified and individualized. Therefore, the platform enterprises need to increase the demand for customers and the recognition and acquisition capabilities of environmental fluctuations, that is, the recognition and acquisition capabilities of knowledge, to increase customer stickiness to achieve the network effect of the platform.

With the rapid development of Internet technology, fragmentation of knowledge has become a common phenomenon. The era of fragmentation requires humans to use fragmented time to obtain fragmented knowledge, and form fragmented thinking to reconstruct and integrate fragmented knowledge, so as to form new knowledge^[6]. Similarly, China's platform enterprises are developing rapidly, and homogenization is serious. The knowledge is also fragmented, and there are many sources of knowledge. The integration and innovation of knowledge is conducive to the creation of the value of the entire platform, and dominant a position in a

completely competitive market.

China's platform enterprises are developing rapidly, and the development models are extremely diverse. With the fluctuation of the environment, the conversion frequency of enterprises is relatively high. Therefore, enterprises need a strong knowledge storage capacity to store the good experience of the company's previous development. At the same time, with the increasing intensification of platform-based enterprises, enterprises increasingly need to communicate and share with homogeneous or heterogeneous enterprises, especially knowledge sharing, and then achieve more stable development of enterprises through complementary advantages.

III. PLATFORM ENTERPRISES' REQUIREMENTS FOR KNOWLEDGE MANAGEMENT

3.1 Establishment of Knowledge Flow Model of Platform Enterprises

As can be seen from the above analysis, the unique characteristics of platform enterprises reveal that they need knowledge recognition and acquisition capabilities, knowledge integration and innovation capabilities, knowledge storage capabilities, and knowledge sharing and application capabilities in the development process. Therefore, from the perspective of the knowledge management process, this article will describe the entire cycle of the platform enterprise from knowledge input to output from the above four parts, as shown in Figure 1.

The knowledge of platform enterprises is in a closed-loop flow. The initial information is mainly generated from internal members, external members, and complex environments. The information generated by the internal members mainly includes documents and records generated during the work, performance evaluation, operation status and employees' perception of the operation process, customers, products and services, and the market; The information of external members mainly includes the transaction records, service evaluation, product feedback and explicit demand generated by the customer group on the platform during the transaction process^[3]; The environmental information includes changes in policy, technology and market environment. Faced with the scattered knowledge from the above three parties, that is, the accumulation of the number of knowledge elements, enterprises are required to quickly identify effective knowledge and acquire effective knowledge. After knowledge is integrated into platform enterprises, it is necessary for enterprises to integrate knowledge from multiple parties and create new knowledge in line with its own development from the organizational culture, technical level and organizational structure level^[7], and then converts tacit knowledge into explicit knowledge. In order to further advance the advancement that forms work flow knowledge, customer knowledge and market knowledge. According to different types of needs, make the knowledge to be distributed to the corresponding groups, eventually to realize the application of knowledge. Finally, the knowledge with better response effect is stored to assist the next integration and innovation of knowledge, so as to continuously realize the efficient circulation of knowledge of entire platforms. In the course of time, enterprises will accumulate many valuable, rare, inimitable, and irreplaceable knowledge to maintain the competitive advantages of platform enterprises.

3.2 Knowledge requirements of Platform Enterprises

3.2.1 Improvement of the quality of knowledge subjects

Platform enterprises have rich knowledge sources, and the socialized and diversified features have increased the non-professional nature of knowledge subjects. Therefore, although the number of knowledge subjects is huge, the knowledge provided is not highly specialized, and most of them are invalid knowledge. At the same time, due to the serious homogenization of the platform, the loss rate of knowledge subjects is high, such as customer, and the efficiency of knowledge conversion is not high. Therefore, platform enterprises need to take certain incentives to improve the quality of knowledge subjects and customer stickiness, which is manifested in the increased ability of knowledge recognition and acquisition.

3.2.2 Improvement of the explicitness of knowledge

Although platform enterprises can obtain knowledge from more knowledge subjects, the closed knowledge management model of platform enterprises and the solidification model that absorbs the knowledge core generated by the internal entities of the organization hinder the transformation of effective knowledge. It is shown that the network effect of platform enterprises makes many potential value knowledge unable to be structured, that is, it is still tacit knowledge^[3], which hinders the development of platform enterprises. For example, Didi taxi is a density network effect. It pays special attention to the supply concentration of specific areas, and strives to respond to customer demand anytime, anywhere. However, the problem of supply and demand mismatch (oversupply or oversupply) often occurs. This phenomenon reflects incomplete conversion of tacit knowledge and explicit knowledge. Therefore, platform enterprises should try their best to meet the needs of customers, and apply artificial intelligence, big data analysis and other technologies to classify the problems that occur, and transform tacit knowledge such as the cause and negative impact of the problem into scientific risk warning knowledge to meet the needs of customers, improving the conversion efficiency of customers' tacit

knowledge, which is manifested by the improvement of knowledge integration and innovation capabilities.

Figure 1: The knowledge flow of platform enterprises

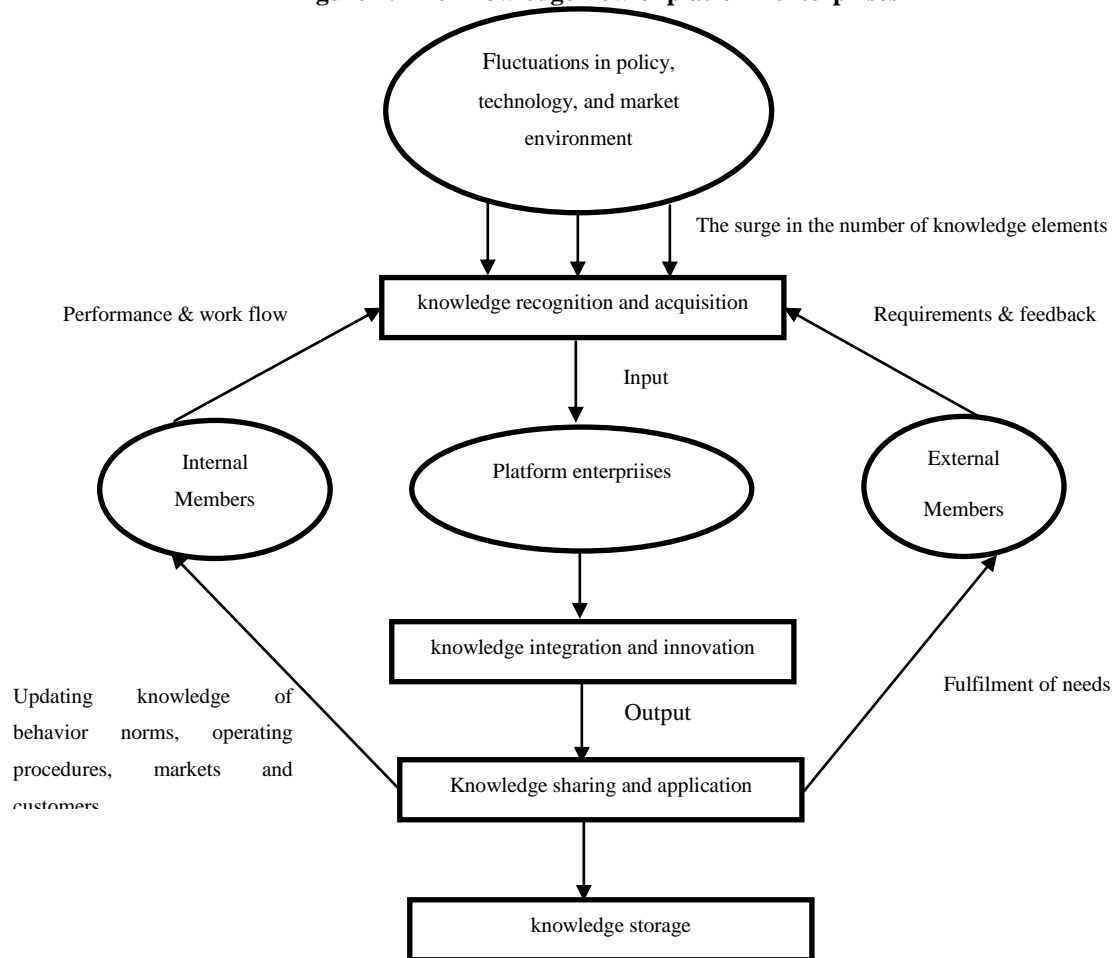


Figure 1 shows the knowledge flow of platform enterprises, which contains four parts, they are knowledge recognition and acquisition, knowledge integration and innovation, Knowledge sharing and application and knowledge storage.

3.2.3 Knowledge sharing and security

The core of knowledge management is to realize knowledge sharing and security. Knowledge sharing is to transfer knowledge of individuals or groups to the organizational system through the exchange of knowledge, so that knowledge can be further expanded. Knowledge sharing includes sharing between and within organizations. Sharing between organizations is beneficial for one party to learn from the other's successful experience. Sharing within organizations is conducive to the efficient transaction of the entities on the platform. Therefore, knowledge sharing is beneficial to platform enterprises to realize the value of the entire ecological cycle. At the same time, in the transaction process, it is necessary not only to allow buyers and sellers to accurately obtain product information and transaction information, but also to ensure the privacy and security of each customer, so that customers can more safely implement transactions on the platform, which showing the demand of knowledge sharing and security.

IV. THE KNOWLEDGE MANAGEMENT COUNTERMEASURES OF PLATFORM ENTERPRISES

4.1 The Leading Force Generated by the Transformation of Knowledge

The ultimate goal of the platform enterprise knowledge management model is to establish a knowledge ecosystem in which the main body of the platform can self-innovate, self-circulate, and self-organize. The key to guiding the knowledge platform to operate on its own lies in the conversion of the dominant force generated by knowledge. Most of the enterprise's knowledge leading power mainly comes from the internal organization of the enterprises, and the platform enterprises call on enterprises to transform the top-down pyramid type with the decision-making layer as the main body into the bottom-up pyramid type with the user as the main body.

Therefore, enterprises need to delegate the power of knowledge generation to user groups. In order to improve the quality of user knowledge, platform companies need to first improve their marketing capabilities and brand awareness to attract more high-quality customers to participate in the production of knowledge, and secondly need to take incentives and rewards to improve the stickiness of customers, and then promotes the willingness of customers to transfer high-quality knowledge and promote the effective conversion of knowledge.

4.2 Rebuilding the Organizational Culture

The core value of platform knowledge management strategy is not an inherent management model or universal application strategy, but an open and inclusive knowledge service thinking that values users. Therefore, platform enterprises need to reposition the role of knowledge management in enterprises, and upgrade knowledge management from auxiliary tools to the status of core assets of the organization. Organizational culture is the key to the success of knowledge management. Therefore, platform enterprises should create an open, free, trust, fault-tolerant, and knowledge-creation and sharing of corporate atmosphere, because platform enterprises are in an open environment, the openness of atmosphere is conducive to the knowledge required by employees inside and outside the organization to access, and it is helpful to supplement and improve the knowledge to update and accumulate knowledge; The atmosphere of mutual trust can promote the high-speed transfer of knowledge and accelerate the explicitization of tacit knowledge; The establishment of a fault-tolerant environment is easy to encourage the creativity of knowledge subjects; The cultural environment of knowledge sharing can increase the vitality and creativity of internal and external organizations of platform enterprises.

4.3 Optimizing the Organizational Structure

Compared with the formal organization structure, which adopts the administrative order method for knowledge management, the informal organization structure is more conducive to the transfer and sharing of knowledge among individuals, teams, and organizations, and is more conducive to the creation of new knowledge. The flow of knowledge under the traditional pyramid-type bureaucracy is greatly restricted. The core resources are mainly concentrated in the hands of a few decision makers at the top of the pyramid, and the utilization rate of knowledge circulation is low. To a certain extent, employees within the organization will be restricted by the level of authority, unable to freely obtain internal knowledge resources, and users outside the organization are more restricted, so enterprises should establish a flat, decentralized organizational structure, which requires a platform enterprises have transitioned from the role of knowledge controllers to knowledge service providers.

4.4 Improve Knowledge Management Techniques

Platform enterprises face a large number of transaction subjects, and customer trust requires long-term cultivation, which requires enterprises to use knowledge management technology to ensure the incentive mechanism in each transaction, thereby increasing customer stickiness. In order to realize the sharing and integration of value knowledge, platform enterprises can establish different internal and external information platform interfaces and interconnected platform knowledge centers^[8]. The internal information platform interface should mainly contain product management information, customer file information, performance assessment information and best practice information for the enterprises. The external information platform interface should set up different customer modules for the supply side and the demand side, so that the demand side can obtain information such as product function introduction, supplier side service evaluation, etc., and the supplier side obtains information such as demand side use feedback and sales volume evaluation report. Collect all the above information into the knowledge center, and filter the information related to different modules through data analysis technology. Record the common problems of transaction communication and work flow so that they can be quickly resolved when they encounter the same problem again, and share product improvement opinions and best practice cases to increase the convenience of customers and employees from multiple dimensions.

For the security of knowledge, platform enterprises should set up identity verification with different permissions in the knowledge management system, so that knowledge of different degrees of importance can be classified and stored, and viewed and used by permissions. At the same time, knowledge intelligent identification technology should be used to screen the keywords in daily operations and customer service information. If the communication content of the payment password is involved, the system can automatically remind customers to pay attention to safety. In addition, in order to narrow the knowledge gradient between knowledge providers and knowledge receivers, platform enterprises should regularly publish knowledge training and popularization of internal employees and customers to make employees aware of the importance of knowledge security and strengthen customer security precautions awareness.

V. CONCLUSIONS AND PROSPECTS

In short, the knowledge management under the platform strategy is different from the traditional linear enterprises. Due to the socialization, quantification and non-specialization of the constituent subjects and the improvement of the requirements for the quality, explicitness, security and sharing of the knowledge source, which makes the management of knowledge identification and acquisition, integration and creation, sharing and application, and storage much more difficult. At the same time, with the expansion of the platform strategic application industry, knowledge management in an open environment has a broader research space. From the perspective of practice and theory, it is necessary to strengthen the research on the knowledge management model in the real scene to support the transformation and development of various enterprises and the improvement of innovation capabilities.

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