

Enterprise Human Resource Support System Based on the Technological Innovation

Take Haier Group as an Example

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Abstract—Technology innovation ability is of great significance for both country and enterprises. Technology innovation focuses on "people", which is provided by the support system of enterprises' human resources. In this paper, we shall first briefly introduce the constraints of enterprise technology innovation from the perspective of human resource, provide the human resource support system based on technology innovation, finally take Haier as an example to further illustrate the importance of human resource management for technology innovation.

Keywords—technological innovation; human resource management; culture; haier

I. INTRODUCTION

It is economic globalization that promotes science and technology by leaps and bounds and competes from the strength of capital into the one of technology. Technological innovation has increasingly become the key to sustainable development of power, which is the main source of enterprise core competitiveness. In order to obtain the largest share of the market, enterprises combine human resources development with the technological innovation, relying on technological innovation for the survival and development of enterprises, and depending on the development of human resources for the guarantee of technological innovation. Human resource is one of the important resources facilitating the technological innovation strategy, not only pay attention to the cultivation and incentives of high technical talents, but also form the human resources with a complete support system and mutual coordination mechanism.

II. RESTRICTIONS OF ENTERPRISES TECHNOLOGICAL INNOVATION UNDER THE PERSPECTIVE OF HUMAN RESOURCES

Innovation is an inexhaustible driving force for sustainable development and the market potential of profit opportunities to achieve commercial goals, reorganize production conditions and factors, and establish more powerful, and efficient and lower cost of production and management systems, which launch a new product and production, open up new markets, and supply sources of raw materials and semi-finished goods or the establishment of new enterprise organizations. Talent is the key to the success of enterprise's technological innovation

which include creative users, knowledge managers, demand investigation, entrepreneur, R&D personnel, skilled workers. But there exists the lack of innovation ability, technological achievements conversion and high-level innovative talents in the process of technological development. Therefore, it is of great significance to analyze restrictive factors of enterprise's technological innovation from the angle of human resources.

A. Weak support of Human Resources Management Strategy for Technological Innovation Strategy

In technological innovation activities, most enterprises do not develop appropriate human resources strategic planning, resulting in human resource management away from the innovation activities. In addition, companies overly rely on R & D and technical personnel, neglect balanced human resource allocation and a reasonable personnel structure between sectors, and consequently human resources strategy and technology innovation strategy do not match. Therefore, human resources rational allocation can obtain high efficiency of enterprise development in the future, and human resource management business management is increasingly becoming an important and indispensable part of the strategy which is formed around the company's overall objectives which better provide a strong support for technological innovation.

B. Imperfect Talent Incentive Mechanism of Technological Innovation from Human Resources

Human resource management is a systematic project, and it includes choosing, employing, educating and retention of candidates which all play a very important role. As an enterprise, they should be a strategic focus of enterprise human resources management to train and select talent, retain some talented and skilled ones, and reduce the brain drain as far as possible. But there is not enough incentive for innovative technical personnel in our enterprises. Most of the leaders and staff undertake the innovation ability poorly and bear the risk of innovation ability weakly, in addition, policy makers also often adopt the method of conservative at the time of examination and approval of great innovation for some project, which affect the optimal period of innovation. There are quite a number of technical staff complained that leaders are willing to spend money to import technology and equipment, instead of

taking big innovation risk, and ultimately affect the progress of the enterprise technology innovation.

C. *No Formulation of Enterprise Culture Good for Technological Innovation*

Human resource systems is an important manifestation of enterprise culture, the people who they have recruited directly reflects a company's values, guiding human resource management from enterprise culture. It is necessary to address corporate culture when discussing technical innovation of enterprises from the angle of human resources, because enterprise innovation culture is the soil for the growth of creative talents. Innovation culture subtly guides and constrains innovation psychology and behavior of employees, which is the spiritual pillar of innovation activities carried out. At present, most of our businesses, especially the small and medium-size enterprises, do not pay attention to enterprise culture construction, let alone develop corporate culture conducive to technological innovation. Lack of innovation and creativity of corporate culture, giving employees generally do not have the awareness and spirit of , which in turn lead to further deficiency of overall coordination across the organization and hinder good communication between various departments to set up interaction collaborative of technological innovation .

III. ENTERPRISE HUMAN RESOURCES SUPPORT SYSTEM BASED ON THE TECHNOLOGICAL INNOVATION

A. *Set up Strategic Human Resources Management Match with Technological Innovation Strategy*

Human resources management strategy is the supporting strength of technology innovation, relating to the supply efficiency of the whole scientific and technological personnel, affecting continuous innovation of technical personnel ability. Therefore, combined with technology innovation strategy, enterprise can formulate human resources management strategy, reform the unreasonable management system and mechanism, perfect the talent competition mechanism, improve the personnel information management system, enhance the continuity of scientific and technological personnel finally ensure the salary and benefits of scientific and technological personnel to promote the rational flow and timely supply of science and technology.

B. *Construct Talents Incentive System of Enterprise Technological Innovation*

Only attractive incentives can retain talent to increase the efficiency. Strengthening the innovation incentive system of science and technology should adhere to the principle of combining intrinsic motivation with extrinsic motivation. First introduce the incentive management towards the innovative personnel wage system in the enterprises, and then make reasonable allocation system to encourage technology investment and ensure that innovative technology talent has its own innovations and the ownership of the intellectual achievements of the franchise. Finally, give recognition or awards to variety of talents who make a creative contribution, which encourage owners to meet the need to and feel acknowledged and respected from spiritual incentive levels.

Cultivate Organizational Culture of Technological Innovation

Organizational culture of technological innovation mainly solves the problem of talent and their values, pursuit and creativity. In the process of initial start-up, enterprises will be lack of general physical capital, when enterprises accomplish a certain number of capitals, it is no longer a scarce resource of the enterprise. And at that time, talent is the most important enterprise values, which is part of the corporate culture. Enterprises need to create an innovative culture to guide and restrict the innovation psychology and behavior of staff, at the same time, enterprise's human resources system is a significant embodiment of enterprise culture. Therefore, as long as the problem of "human" and create innovative culture atmosphere can be solved, technology innovation will better promoted.

C. *Establish Human Resources Complementary Coordination Mechanism for Technological Innovation*

- First, develop human resources supply system, talent introduction ways and standards.
- Second, optimize the structure of innovative talent team, rational allocation of all kinds of key human resources, foster a batch of a huge team with effect on domestic innovation from which produce a number of senior experts of science and technology with certain innovative strength.
- Third, build up talent database and strengthen the cooperation with universities and research institutes to alleviate the need for a shortage of high-tech talent combine with the characteristics of enterprise development.
- Fourth, introduce human resources regulating mechanism to cultivate multi-skill technology person.
- Fifth, construct the mechanism of talent flow. Construction of innovative science and technology talent team needs to improve the talent flow mechanism, intensify their efforts to attract students studying abroad and overseas high-level talents, strengthen the cultivation of entrepreneurial innovation talents of science and technology, carry out the research and development of all kinds of technology, and cultivate a batch of innovative talents adapting to the needs of new and high technology industries.

IV. CASE STUDIES

A. *Haier Group Introduction*

Haier is one of the largest household appliances brand in the world, founded in 1984 in Qingdao. The main founder, Mr Zhang, is currently the chairman of the board and chief executive. At present, Haier has established twenty-one global industrial parks, five major R&D centers, nineteen overseas trading companies, more than 80000 people around the world. In 2012, Haier's global turnover is 163.1 billion Yuan, its profit is 9 billion Yuan which has growth of 2.5 times over revenue growth. According to the international authority survey data

about consumer market, Euromonitor, Haier became the first brand of global white goods for four consecutive years; Boston consulting company in the United States released the 2012 annual, Haier is the "top 50 of the world's most innovative enterprise" who is the only one Chinese enterprises on top 10. In addition, in the global five research and development center, Haier, as resources interface, cooperates with the world first-class supplier, research institutions and famous universities to establish strategic cooperation and form the innovation ecosystem of more than 120 scientists and engineers based on network media. By the end of 2012, Haier has applied for about 13952 patents, one of which includes 8987 authorized patents.

B. The strategic mode of Haier's technological innovation

1) In the early stage--the strategy of imitation innovation

In 1984, during the start-up, Haier introduced four-star fridge production technology and equipment from Germany Liebherr. In this process, Haier delegated personnel to the Liebherr Company in Germany for training in order to study new technologies. Haier broke through and mastered the core technology through training, while conducting the imitation innovation, and produced the first Asia level of refrigerators. Since then, Haier entered the field of home appliances in the same way, for example, in 1993 Haier had joint venture production of drum-type full-automatic washing machine with Italy Merlot. As the products become richer, Haier has gradually entered a phase of independent innovation and owned the advantages of low cost, high quality and increased sales at home and abroad.

2) In the middle to late stage—the strategy of cooperative innovation and independent innovation

After enrichment of products, Haier changes from imitation innovation to the cooperative innovation and independent innovation. Haier, for example, combined with 28 regions of first-class technical level of the company including the United States, Japan, Germany and other countries, and in 1998 established Haier central institute which is equipped with international advanced level of software and hardware facilities, set up 48 scientific research and development entities by the advantage of global resource of science and technology at home and abroad, and becomes the core of Haier group technology and a comprehensive scientific research base of is Haier group through technical cooperation. In addition, Haier central institute is committed to independent research and development innovation, bearing the weight of Haier group and the mission of global well-known brands to provide the core technology support. When making the independent innovation strategy, Haier lies in two aspects as follows, on the one hand, integrate existing technology innovation, apply modern information technology to the refrigerator, develop the network refrigerator, and exploit the global frontier technology; on the other hand, take a series of measures to improve its capacity of independent innovation.

C. Human resource support system on the Haier's technological innovation strategy

1) Unique team of technological research and development

Haier launched "type manager" mechanism innovation, under which develop Haier high-end products, such as the

space frequency conversion refrigerator, P7 pen type mobile phone, both receive good feedback on the market at home and abroad and created high profits for the enterprise. "Type manager" requires them responsible for the market, looking for science and technology innovation subject from the market and users, also seek after forming technology from the market and users. So scientific research personnel must focus on market user requirements and meet the demand of users, which attract the attention of them and enhance the competitiveness of the enterprises. Mechanism of "Type manager" inspires the enthusiasm of scientific research personnel and mobilizes their potential enhanced t.

2) Effective dynamic incentive mechanism In the early stage--the strategy of imitation innovation

Haier uses "racing" and not "soma" to research the incentive of personnel, and "competition induction" of dynamic incentive mechanism, which seeks to employ justly and get promotions by performance talk. Main measures include as follows: promotions, gradually introduced research personnel joint-stock, stock option; provide constantly learning of conditions and atmosphere for research personnel; establish user problem award, and source innovation award. Haier, outstanding performance, and was rewarded by exceptional promotion and staff go on and on. Haier research and development incentives greatly mobilize the enthusiasm of staff, provide a strong technical development team for Haier's product innovation.

3) Continuous training mechanism

On December 26, 1999, Haier created Haier University, which requires each students take participation in Haier University with innovation of motives and existing of innovation results through interactive learning, seeking development of things, and then returning to practice again. Finally provide technological innovations with a steady flow of talent for Haier University.

4) Cultural innovation

Cultural innovation is the soul of Haier. Innovation is an important aspect of Haier culture, promoting mass culture with leaders appeal. Haier culture nourishes employees the spirit of striving for excellence and respects for talent to ensure their lasting enthusiasm and passion for innovation, which also has created a number of innovative staff. For example, some ordinary workers on production lines implement technological changes in order to increase productivity, even pay for themselves to use their spare time. At the same time, Haier's human resource management has provided a guarantee for enterprise culture, ensuring employee enthusiasm and creativity to been made use of. In short, Haier human resource management is the key to success of the effective combination of implant and corporate culture, which create a good atmosphere for the enterprise's technological innovation.

V. CONCLUSION

In technical innovation, enterprises are the bodies and people the most fundamental elements of the enterprises. Enterprises' technological innovation evolve from "inspiration" sparks to action, and ultimately move towards market, during which contains all human activities and only built the

enterprise human resources system can effectively service the system of technological innovation and make a big success.

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REFERENCES

- [1] L.P. Wang, N.Q. Li, "Enterprise human resource support system based on the technology innovation," Human Resource Development of China, vol.9, pp: 15-44. 2009
- [2] Y.H. Zhou, "Promote enterprise technological innovation of human resources development strategy," Human Resources, 2011, 3:43-46.
- [3] Y.J. Xiong. "Technology innovation and enterprise human resources development," Enterprise Economy, 2002, 10:37-46.
- [4] Y. J. Liu, "Troubles and outlet of Chinese enterprise human resources and development ," Shandong Social Sciences, 2011, 9:165-167.
- [5] Y.J. Wang, "Haier's technology innovation strategy," Contemporary Economic Research, 2010, 1.
- [6] P. Zhang, "The successful model of Haier culture combined with HR ," Oriental Enterprise Culture, 2010, 4.J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68-73.
- [7] I. S. Jacobs and C. P. Bean, "Fine particles, thin films and exchange anisotropy," in Magnetism, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271-350.
- [8] K. Elissa, "Title of paper if known," unpublished.
- [9] R. Nicole, "Title of paper with only first word capitalized," J. Name Stand. Abbrev., in press.
- [10] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, "Electron spectroscopy studies on magneto-optical media and plastic substrate interface," IEEE Transl. J. Magn. Japan, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetism Japan, p. 301, 1982].
- [11] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.