

The Impact of Team Heterogeneity on Team Performance of Knowledge-Based Multinationals Under the Belt & Road Initiative

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Abstract—Under the background of the Belt & Road, companies are turning their attention to overseas markets, and the strategic goals of multinational corporations are gradually turning into knowledge competition. The knowledge-based enterprise team has the characteristics of high degree of knowledge integration and ability aggregation, which is of great significance to improve team performance and bring differentiated competitive advantages. The members of the knowledge-based team have different personalities, rich skills, and different social attributes, thus forming functional departments with distinctive characteristics and clear division of labor. How to effectively integrate these people and create a united, complementary and efficient knowledge-based team is the basis for the company to achieve performance. Therefore, this paper focuses on the impact of knowledge team heterogeneity on team performance.

Keywords: *knowledge-based multinational enterprises, team heterogeneity, organizational communication, team performance*

I. INTRODUCTION

As a top-level strategy of the country, the "One Belt And One Road" initiative has attracted extensive attention from the society since it was put forward. The Belt & Road initiative has brought more opportunities and challenges to countries along the One Belt And One Road and raised higher requirements for the development of multinational enterprises. At the same time, the globalization of economy and the internationalization of competition make the multinational enterprises start to look for the transformation path, and think about achieving the highest success and efficiency with the lowest resource consumption. Modern organizations increasingly feel the decisive role of performance in survival competition. New management concepts and business practices emerge in endlessly, from flat organization, learning organization to win-win alliance, and gradually become the means and tools used by managers. Innovation team has gradually become the main force for new innovative enterprises to cope with the challenges of the external environment.

Different organizational levels of different departments in multinational enterprises can bring different effects on the decision-making and implementation of strategic plans. Team heterogeneity is not generated independently of individuals but has an impact on the whole organization. Therefore, the heterogeneity of the team of knowledge-based multinational enterprises becomes particularly important and ultimately affects the performance management of enterprises. The management decision of an enterprise needs reference, and the most basic reference is its strategic goal. Enterprises need to evaluate the gap between their business status and strategic objectives in a timely and effective manner, so as to dynamically adjust relevant business decisions to ensure the efficient realization of strategic objectives. This paper analyzes the impact of team heterogeneity on team performance in knowledge-based multinationals externally and internally, and combines the conditions that multinational enterprises need to face the competitive environment, so as to obtain the significance of the relationship between them, and provide help for multinational enterprises to operate more efficiently under the background of One Belt And One Road.

II. LITERATURE REVIEW

A. Review on the team heterogeneity in knowledge-based multinational enterprises

1) Knowledge-based enterprises in multinationals
The academic community has not yet reached a consensus on the definition of knowledge-based enterprise in multinationals. Some scholars focus on the definition of task, and points out that the main knowledge team is highly creative tasks, based on the conventional wisdom of the breakthrough, the skepticism towards existing solution to achieve the purpose of knowledge creation, realize the problem-solving ideas and methods on the different levels of breakthrough and change. Rong (2011)[1] defines a knowledge-based enterprise as a creative and learning group. The group is composed of two or more than two knowledge-based employees, and the group members

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create and learn for the common goal. This definition points out two characteristics of a knowledge-based team: the members are knowledgeable and the team is creative. Some scholars' definitions focus on the knowledge composition characteristics of team members. It is believed that knowledge enterprises are mainly composed of knowledge workers and flow and transfer among members through knowledge and information. Kuang (2011)[2] defines a knowledge-based enterprise as a cross space in different fields of knowledge. It emphasizes the knowledge composition of the employees of the knowledge-based enterprise, which is characterized by the high level of education in the majority of the employees, the profound professional accumulation, and the rich business experience.

2) Team heterogeneity

In knowledge-based multinational enterprises, employees are the carrier of the core competitiveness of the enterprise, and the team formed has a high degree of heterogeneity. To acquire and retain employees of this type of team, enterprises need to take effective incentive measures in daily work. Compared with non-knowledge-based enterprises, knowledge-based teams have particularly outstanding personality traits, values, psychological expectations and working styles. Because of the quality structure of knowledge enterprise employees, we can analyze the heterogeneity of the team and the unique nature of the employees. Liu (2006)[3] believes that heterogeneity is the manifestation of some differences in characteristics among team members, and the heterogeneity of the overall work team can be reflected by the characteristics distribution rules among team members. At the same time, the research also points out that the deep characteristics of team members have a more significant impact on the team efficiency. Through comparative analysis and research, some scholars believe that the geographical distribution of population sources, three views (world view, values and outlook on life) as well as the differences in work skills and experience among team members are important manifestations of team heterogeneity. The comprehensive analysis of scholars' definition of team heterogeneity shows that its essence is relatively close, and they all believe that individual differences among team members are the specific manifestation of team heterogeneity. This paper intends to comprehensively investigate the effect of heterogeneity on team performance. Therefore, heterogeneity is divided into three dimensions: social attribute heterogeneity, information heterogeneity and value heterogeneity.

B. Review on team performance in knowledge-based multinationals

Team performance is usually understood as results and performance of the team to complete the task, or to complete the quality and effectiveness of the target. The content of the team is divided into group composition, group experience, task and environment faced by the group, and group composition structure. The measurement of

team performance was carried out from three aspects: team member effectiveness, team development potential and team task performance. From the perspective of sociological theory, the content of group performance can be divided into leadership organization and arrangement, leadership supervision function, group skill composition, effectiveness of group interaction and unique characteristics of the group. The measurement of team performance is only measured from two aspects of team members' full meaning and survival rate. Some scholars connected team performance with expected goals and believed that team performance should be measured from three aspects: the output of the team, the influence of the team on its members, and the improvement of the team's ability. Borman (1993)[4] believed that team performance measurement should be carried out from two aspects: the degree of work completed by the team and the degree of spontaneous behavior of team members, namely task performance and peripheral performance. Scholars further clarified contextual performance into two aspects, namely, the degree to which team member deal with interpersonal relationship and the benefits team members bring to the group.

C. The impact of team heterogeneity on team performance

Scholars have rich research on the relationship between team heterogeneity and team performance, but there is no unified view now. It is divided into two categories: one thinks that team heterogeneity brings the conflict to the team, the greater the difference in demography, the more easily the team to disagree, thus affecting team performance. Another point of view is that team heterogeneity brings more knowledge to the team.

1) Positive impact

Some scholars have studied the impact of work experience, education level and own skills on team performance, and the results showed that the above heterogeneity had a significant positive impact on team performance. The other scholars have studied the influence of extroverted personality traits on team performance, and the research results showed that extroverted personality traits presented a u-shaped relationship with team performance. In other words, too many or too few extroverts in a team can have a significant positive impact on team performance. Liu (2002)[5] select part of the university scientific research team to investigate, and utilizing the results found that heterogeneous integration team members can significantly improve the performance of team, the heterogeneity of the members can provide a wide range of knowledge resources, stimulate the creative potential, difference of work experience and education can also make them more efficient to find the optimal way to solve the problem. Some scholars have studied the relationship between the average team education level and the knowledge possession and team performance, and believed that the higher the education level and the richer the knowledge grasp of the knowledge team, the better the team performance. Zhang (2008)[6] studied the relationship between age difference of team members and team performance, and concluded that the

greater the age difference, the more obvious the positive impact of team heterogeneity on team performance.

2) Negative impact

Scholars who hold the negative influence view are mostly based on social identity and similar attraction theories. This theory points out that different individuals in the same social stratum have similar living habits and so on, which will be easier to identify with each other. If team members come from different social strata and have completely different values, educational level and educational background, it will hinder the necessary communication in team work, and even cause internal contradictions, which will lead to the rigidity of interpersonal relationship between team members and affect the progress of work. On the basis of summarizing previous studies, team conflict is divided into two types: task conflict and relationship conflict. Among them, task conflicts among team members can improve the work efficiency of the team, while internal relationship conflicts will hinder the effective communication of team members, thus reducing the efficiency and quality of team work.

3) Double influence

Zhang (2009)[7] took interactive memory system as the mediating variable and established a statistical model to investigate and analyze the working teams of 65 high-tech enterprises. The study confirmed the mediating effect of interactive memory system in the heterogeneity of expertise such as education level and work experience. Zhao and Chen (2010)[8] explored how trait variables such as goal preference and knowledge, skills and experience affect team performance through team learning ability. Their research results showed that differences in team goals would affect team learning objectives and negatively affect team performance. The diversity of skills and work experience will broaden the working knowledge reserve of the whole team, enhance the team's innovation ability, and have a positive impact on the team performance. Cheng (2012)[9], on the basis of extensive research, carried out a questionnaire survey with the team as the research sample, and found that members' different social attributes and value concepts had a significant negative impact on the team's overall innovation ability, but the difference in controlling information had a positive impact on the team's creativity. Chen (2013)[10] investigated 101 research teams in 6 universities in China by case study and empirical study, and found that task-related heterogeneity such as professional knowledge structure and time invested in research could help improve the work efficiency and result quality of research teams, while age-related heterogeneity could reduce the research innovation ability of team members. Ding (2013)[11] selected heterogeneous conflict as the main factor based on the team sample data. His research results also showed that the differences in social attributes among team members could hinder the improvement of team performance through interpersonal relationship conflicts, while the differences in information could expand the team's work ideas through task conflicts, which had a positive impact on team work performance.

III. THEORY DEVELOPMENT

A. Social attribute heterogeneity

Social attribute heterogeneity refers to people's differences in race, age, gender and other aspects, which are more common in demographic statistics. Studies support the view that social attribute heterogeneity reduces innovation performance are mostly based on social classification theory and similarity-attraction theory, emphasizing people's subjective characteristics, and holding that social attribute heterogeneity can inhibit innovation activities by dividing small groups and affecting communication and interpersonal relations among members. Chen (2013) [10] point out that the heterogeneity of social attributes destroyed the harmonious atmosphere of the team, reduced team cohesion and organizational loyalty, and affected individual innovation behaviors and willingness. In social interaction, people often compare themselves with others and subjectively classify themselves into a group according to their different characteristics. This process is called self-generalization. With the continuous strengthening of group concept, team processes such as team norms, cooperation and mutual assistance, and collective attitude will be affected to some extent. Compared with the external members of the team, the internal members have a relatively higher evaluation of the group they belong to. In the process of group communication, they are bound to have conflicts with the external members and further strengthen the group consciousness. Therefore, if the heterogeneity of team members is high, the internal "self-generalization" will affect people's enthusiasm, which is not conducive to team reflection, so the innovation performance is far lower than that of other teams. In addition, poor communication is bound to lead to conflicts, which are mostly relational conflicts. Relational conflicts distract the attention of members, reduce the complexity of cognition, hinder the sharing of knowledge, and prevent the transformation of valuable innovative ideas into the overall innovation performance of the team. To some extent, the age difference of members is a reflection of individual attitudes and values. Within the team, the age difference has a greater impact on the professional and technical communication, that is to say, the greater the age difference among members, the worse the internal communication. Employees of similar age have certain similar characteristics or personalities. These people are more likely to share non-work-related experiences, attitudes, interests or beliefs within the team, and are more likely to form good relationships. In larger organizations, gender difference will also lead to certain communication barriers, which will have a negative impact on the performance of the organization. Thus, this paper postulates that:

P1: Social attribute heterogeneity has a negative effect on team performance.

B. Information heterogeneity

Information heterogeneity is mainly related to the knowledge ability of team members, generally including the differences in education level, professional background, work experience and other aspects. Based on the information decision theory, the differentiated knowledge and abilities

possessed by the members of the organization provide the organization with diversified cognitive resources and a wide range of perspectives. The integration of resources is conducive to the formation of the team knowledge base and the improvement of the overall performance. The more complex the environment and tasks the team faces, the more effective those organizations with diverse knowledge will be. In the scientific research team of universities, members with different knowledge systems and professional experience can broaden the organizational thinking and solve problems no longer limited to the past, thus improving the innovation of scientific research activities. Research shows that in teams with large information heterogeneity, members have different views on tasks, resulting in conflicts closely related to work, also known as task conflicts. If task conflict can be controlled within a reasonable range, it can play a positive role in team performance. The creation of innovative results comes from the collision of different thoughts, which requires everyone to think systematically on the basis of extensive communication. Good decisions depend on sufficient alternatives, and alternatives cannot be proposed without team members with complementary knowledge. Therefore, it is expected that:

P2: Information heterogeneity has a positive effect on team performance.

C. Value heterogeneity

Value heterogeneity reflects the difference in attitude and cognition formed by team members due to their different growth environment and educational experience. Values dominate people's attitude towards things and can guide their behavior accordingly. Team members often feel friendly and comfortable in groups that are in line with their own ideas and practices. Such a relaxed atmosphere can promote the exchange and sharing of knowledge and experience, and stimulate innovative ideas. In addition, teams with similar values have formed an internal force for a long time, and they are willing to put more time and energy into their work and carry out innovation-related activities. The greater the heterogeneity of employees' values, the lower the level of satisfaction with the organization, which further influences the innovative behaviors of employees. Groups with different values tend to have fixed views on a certain group of people, which leads to deeper conflicts and is not conducive to cooperation in work. Some scholars believe that diversity of values will indeed lead to contradictions and frictions among members, which will have a negative impact on performance. In addition, it is difficult to change the way of thinking in a short term for members with relatively different values. Different value orientations lead to great differences in the views of members on things, which will affect the internal interpersonal relationship, cause dissatisfaction among employees, and have a negative effect on team performance. The following proposition is offered:

P3: Value heterogeneity has a negative effect on team performance.

D. Organizational communication

Organizational communication can effectively eliminate potential conflicts among team members, rapidly improve the

knowledge level and skills of team members, enhance their understanding and mastery of decision-making, and help strengthen the team's sense of identity to the team's goals, so as to facilitate the realization of the team's goals and improve team performance. Based on the study of the smoothness of vertical information transmission among team members, scholars believe that the consistency and coordination of team members' knowledge and skills, goal development and other aspects can promote the improvement of team performance. According to previous empirical studies, most empirical conclusions support the significant mediating effect of organizational communication between team member heterogeneity and team performance improvement. Hence, it is proposed that:

P4: Organizational communication plays an intermediary role in the relationship between team heterogeneity and team performance.

E. Model construction

Social identity theory shows that team members from the same social class have certain similarities and are more likely to agree with each other's work ideas and ways in the process of work execution. On the contrary, when a team is mainly composed of members of different ages and genders, such social attribute heterogeneity will have the opposite effect, easily leading to interpersonal conflicts within the team, thus reducing the effective cohesion of the team.

Information decision theory suggests that heterogeneity can provide diversity for the work team knowledge reserve, widen the team's overall knowledge. Employees from different educational backgrounds and experiences can provide more innovative solutions when faced with difficulties at work, thus achieving higher quality tasks. Knowledge-based multinationals' teams are usually composed of different professionals with more specific professional skills, which can help enhance the innovation consciousness of the research team.

Values are a kind of cognition formed by a person in the process of life and study, guiding people's way of thinking and behavior. Value heterogeneity will cause team members to have differences in work objectives and methods, or even difficult to reconcile, increasing the risk of team efficient cooperation.

Organizational communication can create a harmonious working atmosphere through performance expectation, mutual cooperation, team learning and rights and responsibilities sharing. In such an environment, internal employees are willing to give full play to their talents and share their knowledge with others to work together for the team's goals. In summary, the conceptual framework of this paper is shown in Figure 1:

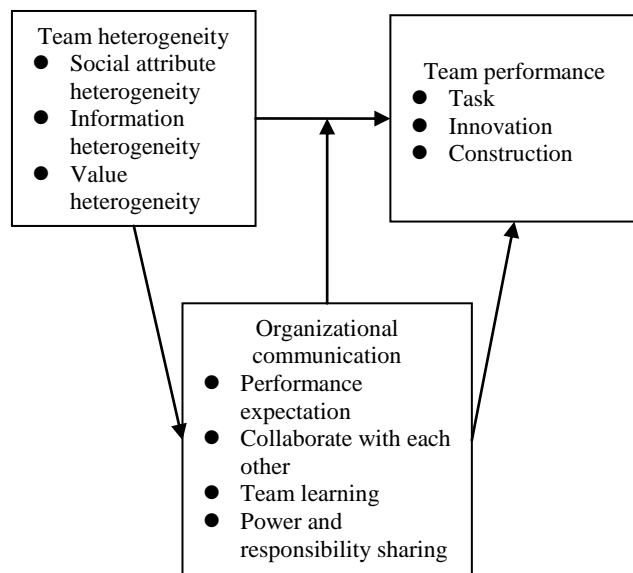


Fig. 1. Theoretical model

IV. DISCUSSION AND CONCLUSION

Under the background of One Belt And One Road, most Chinese enterprises choose to go out, such multinationals are both technological and knowledge-based. This paper studies the problem of improving the performance of knowledge-based enterprises and provides some suggestions for knowledge-based enterprises. Social attribute heterogeneity and values are the primary factors to be considered when constructing a knowledge-based team. As far as possible, Enterprises should try to recruit candidates whose values and social attributes heterogeneous are consistent with the corporate team culture.

Information heterogeneity is reflected by differences in education level and professional background. Enterprises should provide learning opportunities for the team, improve the professional skills of team members, expand promotion channels, and meet the work needs of team members. Members with different educational experiences view the same problem from different perspectives, expanding the scope of problem analysis. If the educational level of the members varies too much, the employees with relatively low educational background or lack of professional experience will have a feeling of psychological pressure or lack of confidence when comparing with others, which will affect the overall innovation atmosphere and communication of the organization.

Organizational communication plays a significant mediating role between social attribute heterogeneity and team performance. Knowledge project team should pay attention to setting open office communication environment to enhance the transparency of work and enhance the effectiveness of work interaction and communication. The effectiveness of communication needs the knowledge team to carry out internal activities in time, establish a good communication atmosphere and enhance the sense of belonging of employees. Different values will inevitably occur in the team, which will have a negative impact on the team interaction and communication, and in serious cases will lead to conflict. Therefore, if there is

any dissatisfaction or contradiction between members, appropriate communication environment should be provided for members to communicate and coordinate appropriately.

Although the hypothesis has been derived from the inference, there are still some defects: 1) this paper lacks specific data for test verification and credibility. 2) The measurement of social heterogeneity only selected the relatively common age, gender, education and working years. For knowledge-based teams, their personnel composition is much more complex than this, and cultural differences have a great impact. Therefore, cultural differences should be taken as a key heterogeneity to be measured and studied in the next research.

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