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Organizational Structure, Cross-Functional Integration and Performance of
New Product Development Team

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Abstract

In the era of global competition, how to improve the performance of new product development team is an important scientific issue. In this study, with the organizational structure of the enterprise as the explanatory variable, the cross-functional integration of the team as the intermediary variable, a cross level conceptual model is constructed to analyze the performance of new product development team, and the survey data of manufacturing industry and high-tech industry in China are analyzed by using multilevel linear model. The research results show that the characteristics of organizational structure has impact of cross levels on performance of new product development team, cross-functional integration of the team has a partial mediating effect between the mechanical organization and the performance of the new product development team and a complete mediating effect between the organic organization and the performance of the new product development team.

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1. Introduction

With the rapid development of science and technology and market demand, the development of new products has become the key to the survival and sustainable development of enterprises. The new product development (NPD) team has been regarded as an effective way to deal with the current competitive environment, in order to integrate the enterprise knowledge resources, accelerate the process of product innovation, so as to improve the profitability

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and core competitiveness of enterprises. However, because of the complexity and high risk of the new product development process itself, high failure rate of new product development and low efficiency seriously hindered the enterprise product development, how to promote the performance of new product development team has become an important problem of the enterprise needs to be solved.

According to the survey of Chinese Enterprises Association (2012), China's enterprises have excessive levels of organizational structure, rigid mechanism, poor information transfer and so on, which is one of the important factors leading to low innovation ability. At the same time, due to the development of new products is a complex activity which has multi-level overlapping and multi elements existing, a number of departments of product development, manufacturing and marketing will be involved in the process of NPD, so the effective integration and management of these functions has become the key issue for the success of NPD[1]. Many scholars have studied the performance of the NPD team from the perspective of organizational characteristics, corporate culture, knowledge management and so on[2-5]. However, there is still a lack of systematic research on the impact of organizational structure on cross-functional integration, the mediating role of cross functional integration between organizational structure characteristics and the performance of NPD team.

Based on this, this paper intends to use cross level analysis method to study the cross level influence relationship between organizational structure of enterprise level, cross-functional integration capabilities of team level and new product development team performance. We explore that the organizational structure of enterprises is how to effect the performance of NPD team through the intermediary of cross-functional integration by an empirical research on China's manufacturing industry and high-tech enterprises, in order to provide the theory and practice guidance for enterprises to improve the cross-functional integration and management, enhance the performance of NPD team through the organization innovation.

2. Theoretical basis and research hypothesis

2.1. Definition of concept

a. Organization structure. Organizational structure refers to the formal arrangement of work roles in an organization and the mechanism of management and integration for work which includes Inter Organizational activities. It refers to a means to achieve business goals. Corporate goals can be reflected to many aspects concretely. But it can be concluded in two categories including efficiency in stable operation and innovation in dynamic adaptation. Correspondingly, there are two typical forms in organizational structure which include mechanical structure and organic structure. Mechanical organization structure is also called bureaucratic administrative organization structure. Enterprises have a high degree of labor division and functional division for the work, and choose the qualified staff to meet the requirements of the job specification in the way of objection and not to subject to individual emotional impact. And they implement the strict level of control on the specialized work which is divided and develop a number of procedures, norms and standards at the same time. Organic organizational structure is also called adaptive organizational structure. Under this kind of organization structure, the enterprises do not set the permanent fixed position and the functional boundary to strictly determine the department. Grassroots personnel have the right to decide on the action that should be taken according to their own skills and information mastering. Direct, horizontal and oblique communication and coordination between members replace the vertical communication and level control to become the main means to achieve the goals.

b. Cross-functional integration. In order to overcome the barriers and conflicts between functions, cross-functional integration has been highly concerned by many scholars. According to the definition of Troy[6] and other scholars, cross-functional integration refers to information sharing, communication and level of innovation participation of departments of research and development, marketing and manufacturing in the process of product development, production and commercialization and so on, belonging to the concept in team level. The existing researches on the cooperation across function of NPD team mostly develop around the perspective of information processing theory and resource dependence theory. Information processing view looks at the interface activities of departments of research and development, marketing and manufacturing from the perspective of information exchange, and thinks that successful development of new product requires inter departmental information integration[7]. Therefore the high degree of information transfer between functions will have a positive impact on decision making and innovation performance in the process of product development[8]. Resource dependency

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