

Analysis of Structural Design of Modular Organization

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Abstract—as a new organizational form of resources integration in the new economic era, modular organization plays a pioneering role for enterprises in achieving great-leap-forward development. Under this circumstance, the researches on modular organization theory are increasingly booming. However, most existing researches just touch upon the surface of modular organization; few studies involve the internal parts of modular organization, especially the internal structure of modular organization. Therefore, based on the characteristics of modular organization and from the angle of traditional organizational theory, this paper starts with the existing research results of modular organization, puts forward the specific method of internal structural design of modular organization, and is committed to researching the internal structure of modular organization to deepen the theory of modular organization and enhance the practical significance of modular organization.

Index Terms—Modular organization; organizational structure; organizational design.

I. INTRODUCTION

Since the end of 20th century, dramatic changes have been occurred between enterprise strategies and organizations, which were breathtaking. As for the traditional theory of organization and management, the interaction and integration between ability and resources of entity enterprises are constructed, instead of the strategy of entity organizations which are based on the physical boundaries and their structural patterns have been reversed. Due to the enormous transformation, the enterprises can make use of tremendous external resources and focus its own resources on a few core areas, so the enterprises' strategies are changed from vertical integration into business-focusing. In terms of scope of operation, business-focusing refers to that enterprises abandon the original diversified operation and concentrate on a few core business; in terms of the organizational structure, business-focusing corresponds to modular organizational structure. The process that enterprises transform the integral pattern into refocusing on core business is just the evolution of modular organization. The theory of modular organization stresses the business module and designs rules to restructure the internal organizational structure of enterprise. Instant response and continuous innovation are the core concepts of modular organization. Through the formulation and design of rules, designers of organizational system blur organizational

boundaries and clarify the organizational trades. The designers make sure the uncertainty of exogenous factors as well as reduce the cost of endogenous factors, and facilitate the appearance of an efficient modular organization. For the connotation and category of modular organization, there are two kinds of understanding in the current theoretical circle. Some hold that modular organization is just a nodal enterprise of the system about production and collaboration; the rest deem that modular organization means the production and collaboration system that is operated by modular model in all aspects, which is the popular view, so the researchers accept and adopt the latter definition. Specifically, modular organization is a kind of enterprises' system which separates organizational value chains through the professional specialization to form sub-modules with different functions and integrates each sub-module to realize the optimal allocation of enterprise resources in accordance with certain designed rules. Compared with the strategic alliance, network organization and other organizational forms, modular organization shows unique advantages: on the one hand, the modular organization not only emphasizes the relationship between enterprises, but focuses on the integration of enterprises and market, attempting to introduce market mechanism into the enterprises to improve the efficiency of the allocation of resources; on the other hand, modular organization has more innovative and collaborative advantages than other organizations, and can make more instant response to market changes.

By consulting the mainstream literature at home and abroad, the researcher found that the current studies of modular organization theory have covered all aspects of modular organization, the studies of modules (Simon, 1962; Baldwin, Clark, 2000), researches of modular (Langlois, 2002; Ulrich, 1995), researches of modular organization (Sanchez, Mahoney, 1996; Schilling, 2001), the development path of modular research (Chesbrough, 2003) and so on. The scholars all have achieved good results from different research perspectives, but, in the existing achievements, most researches just involved the surface of modular organization, and few involves the internal parts of modular organization. From the angles of theory research in depth and guiding significance in practice, the studies of modular organization all need to expand to inside, especially for the formation of internal structure and the way to design the internal structure, which both contribute to the studies of modular organization in theory and practice.

Therefore, based on the traditional organizational theory, this paper begins with the existing research results of modular organization and focuses on the design of the internal

structure of modular organization, and then puts forward the design that covers modular design of organizational structure is a complicated project, including the modular design of organizational process, the modular design of authority, the modular design of organizational performance and the modular design of organizational incentive. As a tentative research, the researcher expects to find specific methods to the guidance of establishing internal structure of modular organization, and will gradually take the internal studies of modular organization as the important direction and be committed to enhance the practical and applied values of the modular organization.

II. THEORY OF TRADITIONAL ORGANIZATIONAL DESIGN

The occurrence of any organization is the result of organizational design. In the traditional theory of organization and management, the study of organizational design has been quite mature. Organizational design is a necessary structure to be judged and chosen to achieve organizational goals, consisting of formal communication, division of labor, coordination, control, authority and responsibility system (Don Hellriegel, John w. Slocum, 2011). So organizational design is a process to establish or change enterprise organizations, namely, through the design and integration of organization structure, process, functions and powers, performance and incentive mechanism, the organization finally obtains the best performance in the dynamic process.

III. PROCESS ANALYSIS OF ORGANIZATIONAL DESIGN

In traditional theory of organization and management, organizational design roughly experienced four stages: analysis, construction, integration and implementation.

A. Analysis

The analysis phase is the beginning of the whole design, and is also the basis of design. The main task of this stage is to sketch the contents of organizational design and determine the principle of organizational design, target and the schedule of implementation.

According to the detailed contents of organizational design and the research results of the organizational design in traditional theory of organization and management, organizational design can be divided into five modules: structure design, process design, authority design, performance design, and incentive design. After making sure the designed contents, an important part in analysis phase is to confirm the principle of design, which should be followed in the whole process of design and is the direction of the organizational design. When the principle of design is adopted, the internal and external environments of organization need to be fully considered.

B. Construction

Guided by the content and principle of analysis phase, construction is a phase to build specific modules of organization, including organizational structure,

organizational process, organizational authority, organizational performance and organizational incentive.

Organizational structure is one of the most important modules in organizational design, which determines the overall form of business organization. Organization structure is designed to complete the organizational goals, and refers to various elements in the organization as well as the relationship among them. Organizational structure is also a measurement for the complexity, normalization and centralization of the organization, and involves the levels of organization, the establishment of organization, the division of function, the determination of responsibility and authority, and the relationship between the members of organization.

Organizational process is the second module of organizational design. The starting point of organizational process concentrates on the customers' demand and resources investment, while the final target of organizational process is to meet customer needs and create valuable products or service for enterprises, all which decide the operational efficiency and effect of enterprise resources. That is to say, organizational process is a collection of a series of activities that take raw materials and customers' demands as the starting point and regard the valuable products or service which are created by enterprises to customers as the ultimate goal.

Authoritative design is the third module of organizational design. The main purpose of this module is to realize the reasonable distribution and control of the organizational authority. During the building of this module, the way to distribute authority is designed to fit the characteristics of organization. What's more, the authority must be allocated and controlled at the same time; otherwise the authority will cause confusion of organization in the case of losing control. Through the combination of distribution and control, the construction of authoritative module can be completed.

Performance design is another important organizational design. The aim of performance design is to make detailed plans of performance management for each component within the organization. When building a performance module, four problems needs to concentrate on: how to evaluate the overall performance of the organization? How to evaluate the performance of each component? How to evaluate the process of performance? How to structure the evaluations?

Incentive design is the last part of the construction of module. The purpose of incentive design is to formulate various types of incentive systems for organization. Incentive measures should not be merely a temporary bonus, and should become a fixed system. In the process of building the organizational design, incentive methods should be devised. According to the actual situations of organization, different incentive means are combined and adopted, and then make that become an enterprise system.

Organizational design is divided into five modules, which doesn't mean that these modules have to be constructed separately in the actual operational process. On the contrary, due to the close relationship among modules, every module should be considered during construction, and the

construction of modules should be viewed from overall situations.

C. Integration

Integration is employed to make the building plan of organization match with the specific factors. There are three aspects that can be adopted to check the matching degree.

Firstly, the matching degree between the plan of organizational design and organizational strategy is inspected. Whether the plan of organizational design matches with the organization's development strategy is the primary issue to consider in the process of integration, which is known as the integration of organizational design on the basis of strategies. All kinds of systems and structures of organization must take strategies as a starting point for arrangement. The systems and structures that are beneficial to realize strategic plan are reasonable; if not, the systems and structures should be adjusted.

Secondly, the matching degree between the plan of organizational design and the business ecological environment is inspected. External environment for organizational survival is like a kaleidoscope, living in different environment requires disparate characteristics. The integration between organizational characteristics and environmental characteristics is called integration of organizational design that is based on ecology, which can highlight the ecological understanding of organization for the external environment. Organization lives in a specific environment that is a special ecological environment and called the business ecosystem.

Finally, the matching degree between the plan of organizational design and the type of organization is inspected. Different types of enterprises need dissimilar organizations. The process for checking the matching degree between organizational characteristics and type of organization is called integration of organizational design that is based on type. Through different standards, various classifications of organization can be made. Strictly speaking, each kind of classification with different criteria will have certain effect on organizational design. After recognizing type of enterprises' characteristics, the designed integration that is based on type can match the scheme of organizational design with characteristics of organizational type, so as to perfect the scheme of organizational design to a large extent.

D. Implementation

During the realization phase, the designers of organizational design need to attach great importance to the control of the process of implementation and the resistance for implementation. The realization of design is a huge project, which is different from the independent operations of analysis, construction and integration, and involves all levels and components of the organization. The proper implementing steps can make the whole scheme of design are implemented smoothly, while the inappropriate implementing steps will hinder even destroy the realization of organizational design. In addition, it is a common phenomenon that the obstruction within the internal organization will be encountered in the implementation of the

organizational design. However, the well understanding of realization of organizational design and the formulation of detailed implementing schedule also can effectively control the hindrances that appear in the process of implementation.

In traditional theory of organization and management, complete and scientific activities of organizational design had been devised: "analysis → construction → integration → realization". By the conclusion and analysis of the research results of organizational design in traditional theory of organization and management, this part formed a more systematic cognition of organizational design. On the strength of that, the author will study the internal structural design and method of modular organization.

IV . INTERNAL STRUCTURAL DESIGN OF MODULAR ORGANIZATION

Although modular organization is a novel organization and management mode, to some extent, the purpose of its existence has consistency with traditional organization; in other words, through the rational division of labor and optimal allocation of resources, the overall competitiveness of organization can be enhanced and sustainable development is realized, too. The differences between traditional organization and modular organization mainly lie in that the latter has more explicit division of labor, and the way to allocate resources is more open and diversified. Nevertheless, by analyzing integrated factors of the whole function, means of function and working targets, modular organization, in some ways, has the identity with traditional organization. Therefore, for the researches of structure of modular organization, the researcher studies the new features of modular organization pointedly under the guidance of mature research results in traditional theory of organizational management. On the one hand, this study will lead related scholars to understand the modular organization comprehensively and further perfect the existing research results of modular theory; on the other hand, this study will enrich and develop the traditional theory of organization and management, and also has great feasibility.

Through the organizational structure, organizational process, organizational function and power, organizational performance and organizational motivation, designers of organization make the construction of the organization come true in the traditional theory of organization and management. Following the researching results of organizational design in traditional organizational theory, the researcher holds that studies should start from five modules according to modular organization: organizational structure, organizational process, organizational authority, the organizational performance, and organizational incentive.

A. The modular design of organizational structure

Guided by the traditional theory of organization and management, the researcher believes that the modular design of organizational structure refers to a dynamic process in which overall developmental strategic goals, vision, mission on the basis of modular construction, and the internal and external resources of the organization, environmental

conditions are all considered to plan, construct and innovate the whole organizational structure.

B. The modular design of organizational process

The so called modular design of organizational processes completely breaks the original process of enterprises, and decomposes and reconstructs the organizational process of enterprises' integration, thus making a process that original parts are closely connected with each other into a modular process that each component not only realizes the effective link of production and operation, but can operate independently.

C. The modular design of organizational authority

In traditional organization, the design of the authority is the realization of reasonable distribution and control within the organization, while in modular organization, the design of the authority focuses on the outside of the organization and accompanies with the organization to refocus on core business. In order that the non-core business can not only realize independent operation, but implement the coordination of the core business of organization, the authority that originally focused on the inside of the organization need to delegate in specific situations during the gradual divesting of non-core business.

D. The modular design of organizational performance

The modular design of organizational performance clarifies the whole operational requirements of organization by determining the level of whole performance; and then according to the professional work of the modules, the whole goal is decomposed, and the abilities of modules for achieving targets of sub-performance are monitored dynamically to ensure that the goals of overall performance come true successfully.

E. The modular design of organizational incentive

By the establishment of internal rules of modular design, the modular design of organizational incentive emphasizes the constraints of the behaviors of modules and plays a leading role in implementing overall organizational resources that are allocated reasonably.

V. CONCLUSION

Despite modular organization is a new organizational mode that arises in the new economy era, it has the common features of traditional organization. Therefore, the author adopts the research results of traditional organizational theory to explore tentatively the internal organization of modular structure. Through arranging the traditional theory of organizational design, the researcher establishes process model of organizational design, and based on that, the author then puts forward that the studies of the internal structural designs of modular organization should be analyzed from five aspects: organizational structure, organizational process, organizational authority, organizational performance and organizational incentive, namely, the modular design of organizational structure, the modular design of organization process, the modular design of organizational authority, the

modular design of organizational performance and the modular design of organization incentive.

REFERENCES

- [1] Chwo M, Joseph Y, "Formal governance mechanisms, relational governance mechanisms, and transaction-specific investments in supplier-manufacturer relationships", in *Industrial Marketing Management*, vol.35, 2006, pp. 128-139.
- [2] Hagedoom J, Cloudt M, "Measuring innovative performance: is there an advantage in using multiple indicators?", in *Research Policy*, vol.32, 2003, pp. 1365-1379.
- [3] Don Hellriegel, John W. Slocum, *Organizational behavior* (13th ed.) . South-Western Cengage Learning, 2011, pp. 441-443.

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