The Collaborative Management Analysis of Organization Coordination Network in Major Scientific and Technological Engineering

Xin-wen HE1,*, Yan WANG1, Ji-xun XIN1, Guang-ming HOU2
1 School of Management, Minzu University of China, Beijing, China
2 School of Management and Economy, Beijing Institute of Technology, Beijing, China
(10808040@bit.edu.cn)

Abstract - Major scientific and technological engineering need many organizations to implement. In order to deeply analyze the problem of organization coordination of major scientific and technological engineering, we use organization theory, coordination theory and network organization theory to solve it, which includes the implementation and control process such as an assessment of gaps in the generation process of collaborative management and identification for coordination opportunities, pre-evaluation of elements, communication, integration of elements, the selection and management of order parameter and some comparison and feedback of the result.

Keywords - Collaborative management, major scientific and technological engineering, organization coordination network

I. INTRODUCTION

In order to deeply analyze the problem of organization coordination of major scientific and technological engineering [1-3], we need the integrated use of organization theory, coordination theory and network organization theory to analyze the process of collaborative management [4, 5]. Collaboration management is the full use of information and knowledge to overcome barriers of communication to generate multiplier effect with individual functions. It is very necessary to add the process analysis of collaborative management for us to fully understand and grasp the motivation, operation conditions and management modes. Because it has an effect on organization coordination network and affect its survival or change at a certain state.

II. THE GENERATION OF COLLABORATIVE MANAGEMENT

A. To determine the relationship between organization coordination’s management objectives and network objectives in major scientific and technological engineering

The object of the collaborative management implementation is organization coordination network of major scientific and technological engineering, whose goals are consistent with the objectives of collaborative management. Confirming the relationship between them is the assumptions to analysis the process. In fact, no matter how much difference between the co-management goals and the objectives of the network, they point to the content or nature of a deep identity, all in pursuit of the overall functional effects and the maximize value. Therefore, we believe that they are consistent and this is also the same in the daily activities [6]. For example, every organization coordination network has its own goal, which is achieved by imposing a certain degree of methods about organization management but also for achieving goals of organization coordination network of major scientific and technological engineering.

B. Check the operating conditions of organization coordination network in major scientific and technological engineering

Although the co-management objectives is consistent with the goal of organization coordination network which is to pursue multiplier effect, it needs to contrast the operating conditions, such as we can recognize its real level of development to find the gap between the ideal level of development and make the resource into full effect.

C. Assess the gap between real level development and ideal level development of organization coordination network in major scientific and technological engineering

The purpose of contrasting its operational status is to understand the gap between the ideal and reality level of development in time or a period about the organization coordination network of major scientific and technological engineering. How to determine the gap between them? The analysis of the target is not specific but general organization coordination network of major scientific and technological engineering. We always establish the coordinates to determine two curves named ideal and reality level of development to assess the gap. The result shows that if the two curves are very close, we can indicate that the network itself has good state of coordination organization and there is no need to manage. On the contrary, it indicates that it is necessary to collaborative management to achieve its goals and a multiplier effect [7, 8].

D. Use collaborative management to solve or shorten the gap

From the above we can determined the gap between the reality development and the ideal level of development of the organization coordination network in major scientific and technological engineering, besides the size of gap can reflect its operation states. The relationship between them is that the greater the gap, the worse of its running condition and the network is unstable. And vice versa counter is. The purpose of the implementation of collaborative management is to narrow the gap between the ideal and reality level of development,
III. THE IMPLEMENTATION OF COLLABORATIVE MANAGEMENT

The above four aspects are the generate motivation of collaborative management, that is why we need to joint management. The generation process of collaborative management is only coordination in ideology and it shows the necessity and feasibility of collaborative management. We must analyze how to implement the collaborative management to change the ideological coordination to actual collaborate behavior. The process of collaborative management includes:

A. The identification of collaborative opportunities

The identification of collaborative opportunities mainly aims to seek opportunities for synergies in the implementation of collaborative management. The identification is the breakthrough of the collaborative management and it can help to achieve the desired effect with many methods and tools. Meanwhile, the identification is the foundation of the follow-up actions. The implementation of collaborative management is based on the identification of the collaborative opportunities.

B. Pre-value the collaborative value of elements

Pre-valuing the collaborative value of elements is making the evaluation for value or contribution of the elements coordination in the process, basing on the identification of collaborative chances. Its effect shows in two ways: the first is it can compare the costs and value of collaboration in the process though the evaluation of the collaboration value, thus we can know the importance of elements collaboration in the whole collaboration process. The second is that it can determine the value of collaborative elements in the collaboration process in advance, which is benefit for us to distribute the benefits and to ensure the follow-up actions to run smoothly [10-13].

C. Communication

Communication is the foundation of the successful implementation of collaborative management. No communication, no coordination, no chances to achieve the objectives in the organization coordination network of major scientific and technological engineering. Communication plays a bridge or link role in unifying the behaviors of the network organization., which is the basis of any problems about organization management. Collaborative opportunities identification and the value evaluation can achieve its proper value and ensure the implementation of collaborative management run smoothly only though the deep and effective communication. All the above can make the organization understand, recognize and reception clearly to translate into conscious act of organization.

D. Integration of elements

The integration of elements is an orderly process of organization coordination network of major scientific and technological engineering and it is also a process to balance choice and coordinate elements to achieve the collaborative management objectives, which is basing on collaborative chances identification, the pre-valuation of collaborative value and communication. The integration of elements aims to excavate the strength of each subsystem or elements and to make up the shortage in the organization coordination network of major scientific and technological engineering [14]. Its effect is to improve or break the restricted link to make the collaborative elements develop the best functions, thus we can achieve the overall goals of system. The mode, principle and implementation of the integration are the contents that must be studied, for they are related to the realization of collaborative management effects and whether we can create value in the process.

E. Order parameter selection and management

In coordination theory, order parameter is a measure of the degree of macro-order system, which dominates the system from disorder to order [15]. As long as we can determine the order parameter of the organization coordination network in major scientific and technological engineering, we can grasp the development direction by a series of methods and means. The aim of elements integration is to produce the desired order parameter and make it play dominant role. Ultimately we can double the overall function of the system, namely the creation of synergies. We need to create a favorable environment for its effects to play. In the government-led major scientific and technological engineering management process, the government’s macro-control is the order parameter for the major scientific and technological engineering. Therefore we can control the direction of its development though the setting of certain powers or the binding of interests legally.

F. The comparison and feedback of the results

In the dominant of order parameter, the organization coordination network will change from the disordered state of instability toward a new steady state ordered, thus it can have new time, space and functional structural to achieve overall functional effects which is the ideal result of the collaborative management. However, we need to according to the feedback to determine whether it is the effect we pursue. If it is, then we achieve the objectives of collaborative, otherwise, we need to return to the beginning of collaborative management to reconsider.

IV. COLLABORATIVE MANAGEMENT CONTROL

As an indivisible part of collaborative management process, control plays an important role in the successful implementation of collaborative management. Control is the rule of collaborative management process, without it, the process will not achieve the objectives of