

## Research on Sustainable Innovation and Change Management System of Software R&D Enterprises

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**Abstract:** Facing the increasingly severe market environment of Sino-US trade competition, the blockade of intellectual property related trade has challenged the business and internal management of domestic enterprises. If enterprises can not shape their own R&D and sustainable innovation capabilities, they will gradually lose the opportunity to participate in market competition. In this paper, the research is carried out from many perspectives, such as the research of innovative methods and the current enterprise organization and management model. This paper puts forward the application methods of the current enterprises through improving their R&D management and innovative change management, organizational structure adjustment and unified management of change functions, and contributes to the development of software R&D enterprises through unified change capability management in the face of market competition.

### 1. Introduction

Facing the increasingly severe market environment of Sino-US trade competition, Chinese enterprises will soon feel the impact of this pressure. In addition to the short-term impact on business performance, it is not known whether business operators have seen another hidden impact beneath the iceberg, that is, trade barriers and intellectual property-related trade blockades on the business and internal management challenges of enterprises habitually copying foreign ideas and advanced technologies. If enterprises can't shape their own R&D and continuous innovation ability, they simply think that intellectual property rights and creativity can be easily solved by copying and talent "digging the wall and foot", without investing a lot of R&D costs, regardless of hard work, the mode of only seeking harvest will no longer exist, and in this respect, a large number of domestic enterprises will gradually lose the opportunity to participate in market competition.

### 2. Questions and analysis

Our competition is no longer whether an enterprise can keep up with the pace of development and change of the times, but on this basis, whether an enterprise can deeply understand the trend of development of the times and the competitive situation of the enterprise itself, as well as the objectives of the business model and the focus of competitiveness. Although enterprise adapting to the development of the times is one of the core competitiveness, it is only the foundation. Enterprise competition is not only the correct choice of direction and mode, but also the flexibility and effective execution of enterprise internal innovation management.

In the past experience, we can see that the initiator of enterprise change is the leader of the enterprise - the leader of the enterprise and the elite of the managers. They make every effort to put forward solutions for enterprise development. In addition to admiration, we lament that the responsibility of enterprise development and change is often confined to these leaders, who do not have much time to participate in the organization and management of enterprise development and change, often through the appeal and advocacy of various meetings, and then these good ideas and correct views disappear in the daily tedious work. It has not been effectively implemented. This

mode is the bottleneck of enterprise development. It can no longer meet the requirements of enterprise competitiveness shaping and development.

Especially in the core software R&D departments of science and technology innovation enterprises, which are highly demanding for innovation and change, there are a large number of states: from department manager to project manager, they attach importance to technology, but neglect management. For software developers, they pay attention to the accumulation of technology rather than to the deep Abstraction and customization of customer business understanding and solutions. The whole department spends a lot of resources and workload to help employees learn and improve their own technology, rather than team business management and solving practical problems or product development for customers. Because of the invisibility of R&D management process, there are a lot of problems in the management of R&D system to effectively implement the management means and behavior, not to mention the effective management and control of internal changes, not to mention the correct recognition, planning, management and performance evaluation of the accumulation of business, technology and management of enterprises.

One loses the consistency management at the company level and the level of each business operation unit, and can not form a rapid change response and implementation capability. If we hope to achieve organizational change control based on these mechanisms, and can quickly adapt to market competition, this is unable to achieve the goal.

How to form a top-down response mechanism to face the ever-ubiquitous demands for change in this era? Enterprises need to re-examine the original system of enterprises and shape the enterprise change management system. This is a subject and task that is also innovative and unprecedented. Especially in today's Internet era, with more and more flattened enterprises' organizations, how to achieve the management and execution ability of these enterprises' internal changes has become a new and important research topic and ability shaping direction in the current enterprise operation. It mainly includes the following points:

Firstly, it is necessary to form a culture and values in which change is a response. Its daily operation mode, responsibility division, execution ability and power and responsibility need to be integrated with the existing operation system, even strategically adjusted, through standardization process and accumulation of best practices. According to their own business characteristics and business development needs, some enterprises with the ability to learn enterprise culture and develop management have selected and imported suitable innovation systems and change modes step by step to help enterprises achieve rapid development.

Secondly, the establishment of strategic enterprise change planning and management system. Any change needs to be implemented in the state of overall planning and control. It can neither lose its goal, become mere formality, nor ignore its priorities. Business indicators are decomposed, only tasks are assigned, tracking management is lost, nor result indicators assessment and reward and punishment system can be lost.

Over the past period, various kinds of technological and managerial innovations that science and technology innovation enterprises should introduce into the market competition emerge in endlessly, such as project management iteration, demand development process and product integration, introduction of new technologies and framework tools, agility of R&D process, integration of testing and continuous integration, continuous delivery and other technological and managerial innovations, as well as corresponding team building and upgrading. Improvement of personnel skills, etc. These are the methods that science and technology innovation enterprises gradually summarize and innovate in all aspects of the business field to meet customer expectations and characteristics of the times, to solve external problems, or to adapt to challenges, and gradually extend to the whole department and enterprise.

Not every enterprise's improvement and upgrading process is smooth and effective. The problems and conflicts faced by change are constant, many of which are mistakes and failures. In order to prove their motive force and consciousness of development and change for the sake of change, some enterprises, out of a spontaneous judgment, have blindly formulated goals and indicators of backward transformation plan without sufficient early investigation and reasonable

comparative analysis and deduction. The whole process is full of sport-like meaning, divorced from the appropriate business planning and practical support, without effective integration with business management and operation team, which not only harms the original business development, but also confuses the objectives of employees, and harms the enthusiasm of employees..

### **3. Suggestion and Solution**

In order to achieve the above goals, we recommend an effective way to promote departmental change management. Especially for R&D department, which is an important promoter of innovation and change, we should set up an important departmental component unit. Referring to the term definition of CMMI Institute, EPG (Engineering Process Group) is responsible for enterprise business development pre-research, change planning and implementation of change. Management and sub-plans through thematic sub-plans to ensure effective implementation of change measures, and to evaluate the effectiveness and performance of change management.

Because of the particularity of software R&D technology and the characteristics of the deep combination of software engineering development process and management process, we can not simply separate engineering management from engineering development process, so we need people with deep engineering project management experience and personnel with professional software engineering technology accumulation to work together to create changes that meet the demands and wishes of both sides. Through the distribution of change tasks at the company level and the discussion of the key points of change proposed by internal suggestions, the reform management mode and the corresponding change organization management mode are put forward and discussed, and the action plan of improving key points and ways under the current internal, operational process and management mode framework is obtained. The major changes and task modes are divided into several parts. In general, it is suggested that thematic selection and multiple thematic interfaces should be adopted to transform into organizational units where the task of internal change falls. The objectives, responsibilities, input-output resources and expected results of each topic should be proposed.

The above requirements make enterprise change management always in a state of oppression before and after, which will also exist for a long time and can not be avoided, which is also the reason why enterprise change management is difficult to implement. The transformation of an enterprise requires thinking, judgment and strategic planning of the profession, deep analysis of the internal state of the enterprise, formulation of change planning, hierarchical planning, goal system planning of sub-departments, formulation of action strategies and plans, selection of special topics and implementation of monitoring and guidance, until the final results are clearly determined and performance appraisal, which is a complete domain project. It breaks through the original management paradigm, management thinking and evaluation system, and breaks through the restriction of the timeliness of enterprise management. It has become the key success factor and core competitiveness for enterprises to achieve long-term business growth

### **4. Conclusion**

Based on the analysis of the characteristics of the current information society, this paper illustrates the situation of the pressure of change brought about by the sustained competition and Innovation Faced by enterprises, and puts forward the viewpoint that enterprises need to incorporate change planning, change management, change execution, change monitoring and change performance management into the shaping of their basic management capabilities. This paper analyses the necessity of determining the competitiveness and sustainable development of enterprises through the capability of continuous change management, and puts forward the solutions through the change of enterprise organization and management structure, the way and means of enterprise daily change goal and execution management, and refines the corresponding change index management and evaluation system. Help science and technology innovation enterprises to improve the core competitiveness of change management ability and sustainable development.

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