

Program Pull Management Mechanism Based on Benefits Management Theory

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Abstract—The aim of program management is to realize the maximum of coordinated benefits in the integrated management which requires the mode of program management to be directed by benefits realization and commands the success criterion to shift from project realization to benefits realization. Therefore, the program management should transfer from traditional push management to pull management. The paper made a literature review of benefits management as the core of program pull management mechanism, which established a series of management methods in which the benefits pull the business changes and business changes pull the projects. The paper also analyzed the path, methods and impact factors of the realization of pull management mechanism.

Index Terms—Program management, pull management mechanism, benefits management, maximum of coordinated benefits.

I. INTRODUCTION

Traditional project management usually uses push management methods, namely under the vision of determining, regarding project construction as the focus, emphasizing the realization process of the project, thinking that the completion of the project represents achieving the goal, and underestimating the important role of business change and considering that building construction is the final goal. This leads the development of some projects off track, even the failure in the end [1]. The reasons of failure include the inefficient leadership, the too large or complex project size and so on [2]. Among them, the indistinct definition of the expected benefits became the key factor causing the failure of project group and gradually caught the attention of the academics [3].

In the research and exploration of such issues, it is obviously that benefits management model guides the project group to abide by the established goals and to form a set of pull management model [1]. This model emphasizes on the leading role of vision of the program and explains the mechanism that benefits promote business change, and business change pushes the development of the projects, which builds reverse process of the benefits targets conduction, and guides the project managers to formulate the

project management strategy in accordance with target benefits.

II. BUILDING PULL MANAGEMENT MECHANISM IN PROGRAM MANAGEMENT

A. The Driving Factors of Pull Management Mechanism in Program Management

Compared with project management, program management is not just mechanically synthesis of different project management, but the coordination process of projects, strategies and organization activities. Program management needs project management knowledge, technology, tools and skills to meet anticipated goals of the organizational investment strategy [4]. By studying the program features put forward by the PMI group, we found that the program management contains a variety of elements to drive the formation of the pull mechanism, which perform mainly in the two aspects that namely the realization of the project management objectives and the stakeholder benefits coordination. In the process of program management, the above factors exist and work at the same time, to drive the formation of the program pull management mechanism under the framework of benefits management theory.

1) Realizing the aim of program management

In the process of program management, with the increase of project scale, the increasing number of involved stakeholders, the added value of program system and the extension of value chain, the aim of program management has extended to be realizing different projects' comprehensive income for organization, and conducting program coordinated management in order to achieve coordinated benefits [3]. However, traditional program management methods failed to realize the maximum of program coordinated benefits. One of the failure reasons is the growing diversity and complexity of benefits contents.

The integration of various targets requires more flexible program management mode and program managers' control ability. This idea can help to make a global plan and timely and dynamic adjust during managing the program. Based on this, we need to design program strategically, and to emphasize on the role of business change based on the different benefits with the guidance of the program vision. Therefore, the aim of program management realization requires reverse pull management mechanism.

2) Coordination of stakeholders' interest demands

Stakeholder management plays an important role in the program management [5]. However, in the development process of program management, the conflicts among

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different program stakeholder's interest demands repeatedly occur. If the conflicts cannot be reasonably resolved, it will reduce program performance [6]. Therefore, program management should ensure effective communication and cooperation between different stakeholders. According to stakeholders' relationship with the program, academics divided stakeholders into different types. Based on how closely linked between stakeholders and project, Olande divided stakeholders into internal stakeholders and external stakeholder [7]. Thiry divided stakeholders into core stakeholders, project-impacting stakeholders, edge stakeholders and potential project-impacting stakeholders by analyzing stakeholders' influence on the project [8].

According to the above analysis, the relationship between stakeholders will vary depending on different criteria and most of criteria for the classification are based on different relationships between stakeholders and the program, and few based on conflict of interest demands. If stakeholders are classified on this basis, we should analyze and classify stakeholders' interest demands at first. This fits in with the thought of benefits management, which contributes to the emergence of program pull management mechanism.

B. The Model of Realizing Pull Management Mechanism in Program Management

The program pull management mechanism takes program's vision as the foundation of program planning, which is a demand-driven serial transmission process. As the program's vision includes complex contents, we explain them as pre-realized intermediate benefits for different programs. After a detailed identification of the intermediate benefits, each of benefits as a clear objective pulls a change. As business change is based on the actual project, only the project is put into use, the business change will really happen. Therefore, the demand for change has a stimulating effect on project development. In this process, the intermediate benefits which take stakeholders as core set, and prior to performance indicators focusing on the project itself, play an overall guiding role. The whole process of program pull management mechanism based on benefits management theory is shown in Fig. 1.

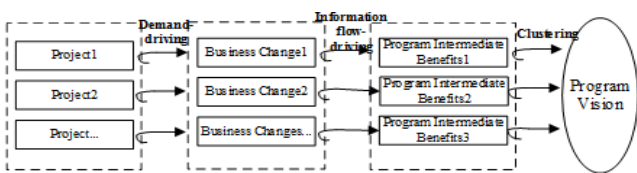


Fig. 1. The whole process of program pull management mechanism.

Ward, Taylor and Bond pointed out that if there isn't a plan, it will be difficult to predict how effective an organization will achieve its organizational benefits. Therefore, in the whole process of pull management mechanism, the key point are to identify and analyze pre-realizing benefits of the program [9].

Questionnaires and case analysis are the primary means of identifying program's benefits [10] [11]. Although the program contains numerous benefits, the benefits can be classified different according to the route or method for benefits realization. The traditional benefits classification emphasizes on subjective understanding and classifying benefits based on the nature of benefits. However, as

subjective classification may result in analysis bias, there is a need to add quantitative analysis tools. Therefore, SPSS is used to complete cluster analysis of benefits classification, eliminating systematic errors due to subjective concept [12].

When combing the program benefits, benefits between different stakeholders will be in conflict, so there is a need to coordinate the relationship of different benefits. This can be solved by combining qualitative and quantitative methods. On the aspect of qualitative analysis, the best technique of identifying benefits relationship is to conduct stakeholder interviews and discussion forums^[8], including introducing the importance of questionnaire and interpretive structural modeling and measuring benefits, clarifying different benefits realizing paths, and building the overall framework of benefits realization.

TABLE I: THE EVOLUTION FROM PUSH MANAGEMENT TO PULL MANAGEMENT

Research paradigm	push management	pull management
Definition	Project is a purposeful one-off task under some constraint conditions	Program is a set of associated projects which can take extra benefit compared with independent management through coordination.
Essential cognition	Project itself is the key to push management	Project is the method to realize program benefits
Diagrams		
Management feature	Project not only has producing function but also is a tool to configure resources.	Program is more extensive, and has to revolute the business in order to meet the expected benefits of organization.
Research hypothesis	Project has producing function	It is the necessary condition to realize program vision by program management and business change.
Theory and method	Critical path method, information and document analysis ,program evaluation and review technique, gantt chart, work breakdown structure, earned value analysis, risk management etc.	Lean management, 6σmanagement, stakeholder management, strategic management etc.
Research perspective	In the core of project's input and output, only from the perspective of time ,duration, cost to improve the technology of management level	Considered the project's effect in program project portfolio even the whole organization, from the perspective of achieving organizational strategy, complete the nine functions of project management.

After the construction of the general framework, contingency theory is introduced into program management according the dependence of benefits, in order to realize the flexibility of program pull management. Berghout, Schuurman and Wingerden put forward benchmarking management measures which offered reference standard for

evaluating benefits and improved the benefit plan [13]. Remenyi and Sherwood-Smith emphasized whether organizational strategy is consistent with business change is one of the key factors for successful program [14]. But it is rare for the operational methods of benefit plan. Therefore, Bradley suggested that it is important to formulate benefit dependent relationships and establish a technical method proceeding from the organizational vision to formulating benefit plan [1]. The evolution of theories and the invocation of methods help program pull management upgrade compared with traditional push management. The evolution from push management to pull management is shown as Table I.

III. FACTORS INFLUENCING THE PROGRAM PULL MANAGEMENT MECHANISM

A. Organizational Design and Coordination

One of the important issues in program management research is the relationship between the realization of program management goals and the necessary condition of carrying out program management. The research of enterprise in the past has found when the strategic changes, organization design should also be rescheduled in order to effectively realize the new strategy [13]. In the research of program management, scholars pay attention to the organizational design and coordination as an influencing factor.

Roth, Schweiger and Morrison pointed out that only defining the responsibilities of different roles clearly can help realize the expected benefits effectively [15]. Therefore, in order to ensure successful realization and management of the benefits, the responsibilities must be clarified. In the process of distribution of responsibility, all the stakeholders who can influence benefits of the program should be considered in order to the smooth execution of the task. So, program supervisor should formulate overall strategy which can realize benefit maximization and ensure the reasonable assignment of persons and resources. Meantime, other members of project manager take direct responsibilities of benefit management.

Proper organizational design and coordination push program pull management which is based on benefit management theory. With improving traditional project management framework, increasing necessary management job and arranging reasonable staff in every step can promote the efficiency and accomplished level of program pull management.

B. Reasonable Degree of Planning

The reasonable degree of planning can also influence the realization efficiency of program pull management. Therefore, realization plan should not only include the arrangement about the whole process of pull management but also detailed analysis about the influence of measures and outer environment in every steps. In the aspect of control, quality function deployment used for refining the benefits and making the operation of realizing benefits possible is an important tool [16]. Meanwhile, assessing the impact of external factors especially causal factors on the projects in making plans also count. The measurability of the degree of

realization of benefits is another respect about the reasonable degree of planning in program pull management. In the process of program pull management, the realization of benefit levels are related to the efficiency of information transfer, and will enhance program pull management levels further.

Program pull management plans should not only reflect the comprehensiveness, which is to say considering the achievement of synergistic benefits about stakeholders, but also refine and arrange the job in every managing steps so as to achieve a workable plan and improve management efficiency and management level.

IV. CASE STUDY

On the basis of preliminary research of large-scale infrastructure construction in Tianjin region, we choose one representative case — Tianjin railway station integrated transport hub program to test the reliability, internal validity, construct validity and feasibility of the program pull management mechanism. The continuous construction of transport hub paid attention to the matching between the project and wide income range, which belongs to the typical sample of program management. Therefore, the effective program management mechanism is particularly important in the whole process of the management.

A. Program Benefits Planning

1) Identify and analyze benefits

Based on stakeholder theory and life cycle theory, Tianjin railway station integrated transport hub program benefits and the requirements of the stakeholders' interests were studied. Using history data analysis method, Delphi methods, questionnaire survey method, we identified and analyzed interests requirement of stakeholders in Tianjin railway station integrated transport hub program.

2) Transform stakeholder demands to design parameters

We used QFD (Quality Function Deployment) and AHP to transform stakeholder demands to technical idea and systematic function design, finally forming design parameters. This made stakeholders' abstract demands translate into specific function design parameters and improves the operability of benefit realization. Integrating the design parameters to the planning stage made the overall benefit of project clear, which formed the overall benefit planning of Tianjin railway station integrated transport hub program.

B. Program Benefits Delivering

1) Realize coordinated benefits and optimize resource allocation

Based on program management theory, we used stakeholder analysis to clarify the benefit scope of Tianjin railway station integrated transport hub project and coordinated the relationship of program's overall benefits and stakeholders' individual benefits. After that, we used critical chain to figure out the delivery order of projects, fixing the problem of low benefits level due to the ill delivery order of projects. We also applied strategy combination and strategic bucket model to optimize resources allocation for

program management, laying a foundation for maximizing coordinated benefits.

2) Establish organizational and functional management framework

To maximize coordinated benefits, we figured out the amount of projects which constituted the program, their correlativity and contents, to realize systematic, consistent and predictable control of Tianjin railway station integrated transport hub program. Based on this, a management structure of Tianjin railway station integrated transport hub program was built up.

3) Build program information portal

In the framework of fundamental program management, applying value engineering and stakeholder theory, we built the information portal of Tianjin railway station integrated transport hub program. Then, based on Multi-agent system, we did integrated design of the interfaces of Tianjin railway station integrated transport hub program, realizing the shared path of lifecycle information integration oriented by operation. In this way, the information barriers were eliminated in the operation process of the program and blind spots existed in organizational responsibility system.

4) Manage contract in the program management.

Given that types of contracts are complex and diverse and relevant criteria is numerous, we studied the whole process of contract management and design contract for the program characteristics. Effective contract management led to successful performance of the contract. Meanwhile, the schedule and quality of the projects met all stakeholders' demands.

C. Program Benefits Realizing Facility Management in the Program Management

Because the management objects of Tianjin railway station integrated transport hub program focused on facilities in the stage of benefits realization, we used LCC and facility management to build up the organization mode of facility operation management, the control mode of facility operation management and maintenance mode of facility operation, in order to achieve orderly and efficiently operation of facilities system and to increase the benefits. Based on the principle that social effect is as important as economic effect, the operation management of facilities system of Tianjin railway station integrated transport hub program, as well as program benefits are realized. The operation of facility system met most needs at the lowest cost, and maximized the program benefits.

In summary, the management mechanism of Tianjin railway station integrated transport hub program is consistent with program pull management mechanism based on benefits management theory which this paper built up.

V. CONCLUSIONS

The paper builds up the program pull management mechanism based on benefits management. We try to provide a comprehensive understanding of the program pull management mechanism by analyzing the concept, driving

factors, realization and influencing factors of the program pull management mechanism. The conclusions are: 1) The program pull management mechanism contains many kinds of factors, some of which may exist alone or together; 2) The program pull management mechanism is a demand-pull serial transmission process; 3) The reasonability of organization design and coordination and planning put an effect on realizing the program pull management mechanism.

The paper contributes to program management in two aspects as follows. First, the paper put forward the idea of program pull management mechanism initially based on benefits management theory. Second, based on the literature review, the paper carried out a deep analysis of factors of program pull management mechanism, which provides a feasible direction for further research on program pull management mechanism. Third, the paper pointed out affecting factors and revealed the critical control points of program pull management mechanism. How to improve program management performance from the perspective of program pull management mechanism in program management is undoubtedly an important and meaningful research direction.

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