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Building of Post-project Management

Abstract Traditional project management often ignores problems arising after project completion such as value changing, functional decline, waste of resources and environmental pollution during the operation and dismantling process. This paper advances the concept of “post-project”, builds a framework for post-project management with case analysis, as the social development and new requirements for project management by environmental protection. Post-project refers to a project which no longer possesses normal value, because of loss after use, inability to adapt to new requirements, artificial destruction, damage beyond control, and deprivation of value after the completion of the project. Post-project management encompasses a series of management and technical activities including updating, reforming, removal, recovery, and recycling. The process of post-project management is composed of classification and characteristics of post-projects, management decisions, implementation, and evaluation. Post-project management can realize the sustainable development of project and society.

Keywords: project management, life cycle, project update, project remake, project removal, project restoration, project recycling

1 Introduction

Traditional project management focuses on quality, time, and cost management, during the construction period. Today, some researchers have brought the idea of life cycle management to project management. They have obtained a series of significant achievements, such as the system thinking of engineering management (Cheng, 2001; Cheng

& Han, 2012a; Cheng & Han, 2012b), the theory of engineering life cycle management (Cheng, 2011), the object system of engineering life cycle management (Chen & Cheng, 2004), and the key theories and techniques for life cycle design (Cheng, Zhang, & Luo, 2010; Han & Cheng, 2010; Han, Hu, Zha, & Cheng, 2011), with the development of research and practice.

This paper mainly focuses on management problems at the end of projects. It puts forward a novel concept of “post-project”, builds the framework of post-project management, analyzes its processes and makes a case study, to meet new demands from social development and environment protection. It can be a scientific managerial support for project re-development, remnants treatment, ecosystem recovery and other problems at the end of projects. It also can realize the sustainable development of projects and our society.

2 Concept of post-project

For some time past, some projects have been abandoned and wasted due to the fact that certain functions could not meet the practical needs of practical processing with social evolution. They have become a kind of “post-project”. In this paper, post-project refers to a project which no longer possesses normal value, because of loss after use, inability to adapt to new requirements, artificial destruction, damage beyond control, and deprivation of value after the completion of the project. It includes sick project, brain death project, natural death project and sudden death project.

2.1 Sick project

A sick project does not have any problem that affects structural safety and/or reliability, but some of its parts have shown a series of problems, such as performance deficiency, high energy consumption, or quality defects. For example, some old buildings are very safe but uncomfortable, because some equipment is outdated. For sick projects, we need to update or repair them or do some reform works.

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2.2 Brain dead project

A brain dead project has been abandoned for quite a long time, because it does not have any present use value. For the most part, it is in good condition and it just like in the brain death conditions. As to brain dead projects, re-development is a good choice to recreate its value. For example, we can change some old industrial building to art districts, as was done with 798 art district in Beijing.

2.3 Sudden death project

It refers to a project which is been suddenly destroyed by either natural or human forces, before completing its design life. Buildings destroyed by earthquakes would be an example. As to sudden death projects, we focus on reduces treatment and site cleaning.

2.4 Natural death project

This refers to a project which has completed its design life or mission, and has no reuse value. It is a normal aging process. As to natural death projects, the main works are materials recycling and reusing, and ecosystem restoration.

3 Framework of post-project management

Post-project management is oriented by its value system and based on the rules of project aging. It includes a series of works, such as project update, remake, removal, restoration, and recycling. It focuses on project re-development and tries to increase resource consumption efficiency. Finally, it tries to realize the sustainable

development of project and society. The post-project management can be analytically divided into three levels: philosophy thinking, rational thinking, and realistic thinking (see *Figure 1*).

3.1 Philosophy thinking

The rules of project aging are the principle of post-project management. The process of project aging shows the value changing of a project. It starts from aging and damage, and finally reaches its limits. Most are slow and incremental. It is a process from quantitative change to qualitative change and realizes the process of mutation. The speed a project ages is affected by technical, economic, and social factors. The effects of these factors combine and integrate. We can make a more scientific decision in practice, if we get a deeper understanding of these rules.

3.2 Rational thinking

The value system of post-project management guides all management activities. It determines post-project management direction. Traditional project management focuses on quality, time, and cost management, post-project management has a multi-dimensional objects system: pursuing project value and benefits maximization on the foundation of safety and reliability of the project, requiring the harmonious relation between project, nature, social and mutual development. It reflects a great historical mission of a project (see Table 1).

3.3 Realistic thinking

The principle of it is “3R”: Reduce, Reuse, and Recycle. It realizes its objects by project update, remake, removal,

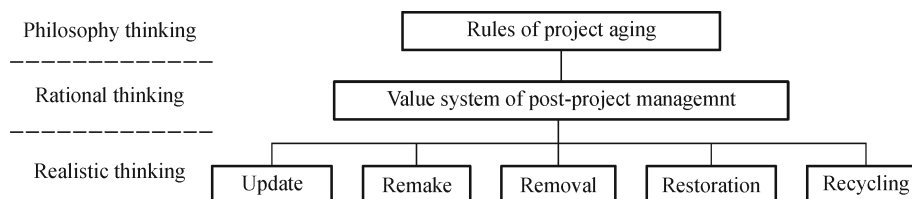


Figure 1. Thinking system and tasks of post-project management.

Table 1

Value System of Post-project Management

Value	Description
Function-economic value	Basic project requirements. Maximizing function-cost ratio is the object. Involves operational performance, safety and reliability, and cost optimization
Project-environment value	A higher level value. Reflects requirements of harmonious development in the contradictions between a project and the environment, such as environment-friendly
Project-sustainable development value	Highest level value. Synthesizes scientific development, sustainable development, and other guiding ideologies Requires coordinated development between project and society to assure project can be sustainability while meeting constantly changing human demands

restoration, recycling, and other actions (see Table 2). The theory and method system is also been built on this level, based on related theories and methods. Every task has different missions but all follow the value system of post-project management.

4 Process of post-project management

Post-project management starts when a project becomes a post-project. The process of post-project management shows the main steps for post-project management (see Figure 2). It includes classification and characteristic analysis, decision and implement, evaluation of benefit and effect. All these processes are value system oriented and focus on the sustainable development of project and society.

4.1 Classification and characteristic analysis

The classification and characteristic analysis for post-project is the premise and base for post-project management. Different post-projects have different management tasks and key points. The key to classification is characteristic analysis of post-projects (see Table 3). For example, as to a half-finished building, although it has been partially damaged, the main characteristics are idle and abandoned making it a brain death project. For this kind of post-project, re-development strategy and methods are key points to be considered.

4.2 Decision and implement

The decision and implementation of post-project management are processes of methods choices and value

Table 2

Task and Technical Support of Post-project Management

Activity	Description	Support	Instance
Update	Update or renew some equipment and systems for old buildings to meet new demands	Intelligent building system, building automation system, etc.	Update intelligent building system for old buildings
Remake	Maintenance, reconstruction, or expansion to solve problems such of aging, damage, etc.	Techniques of building reinforcement, monolithic movement, etc.	Remake of abandoned industrial buildings
Removal	Building demolition for those having no value or has completed its design life or its mission	Techniques of blasting demolition, shaped charge cutting, etc.	Demolition of broken house
Restoration	Spot clean and ecosystem recovery for demolished buildings	Land reclamation techniques, etc.	Land reclamation
Recycling	Recycling of wasted or excessive material though life cycle	Recycled concrete, water recycling device, etc.	Using gray-water

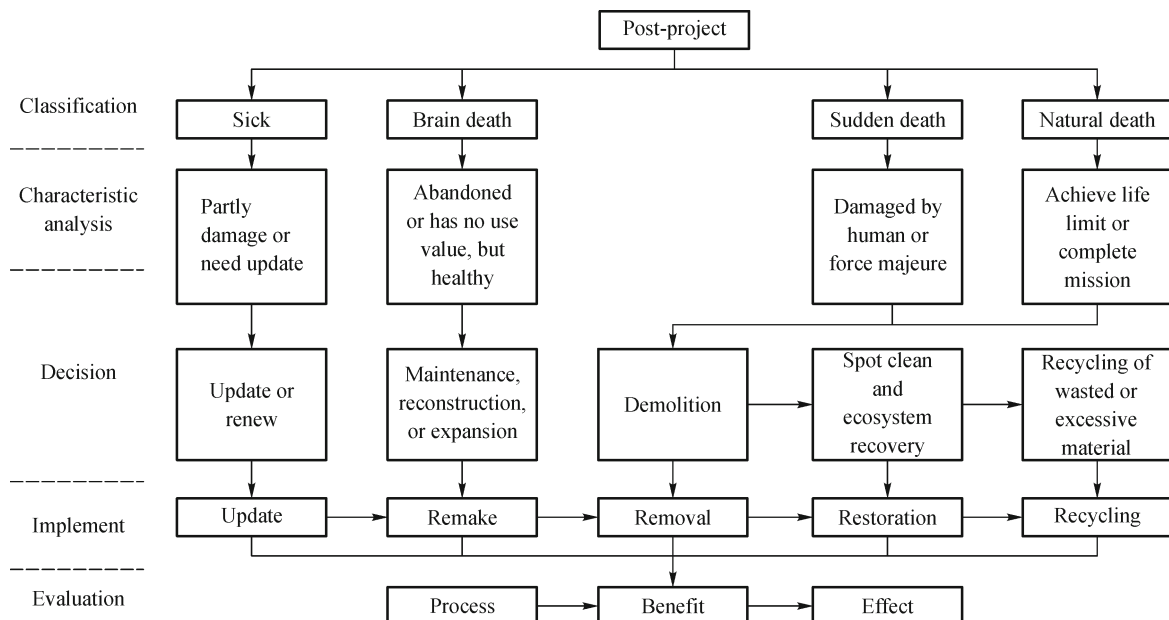


Figure 2. Post-project management processes.

Table 3*Classification and Characteristic of Post-project*

Classification	Process	Status	Cause	Example
Sick	Gradual or sudden	Unable to meet demands, but has use value	Excessive wear, equipment outdated, etc.	Vulnerable buildings
Brain death	Gradual or sudden	Meets demands, no use value	Demands change, social development, etc.	Abandoned military defense works
Sudden death	Sudden	Unable to meet demands, use value	Human and/or natural damage, etc.	Building destroyed by terrorist attack
Natural death	Gradual	Unable to meet demands, no use value	Excessive wear, mission completed, etc.	Temporary structure

realization, which are based on the classification and characteristic analysis for the post-project. The biggest difference between decisions for project management and post-project management is that the latter should think about some factors of existing project as follows.

(1) Health conditions, such as equipment use and maintains status, safety and reliability. If an old building has only outdated functions and/or equipment aging and updatable, we only need to do hardware update works, such as elevator replacement. If an old building has some quality problems not affecting safety and reliability of the main structure or cannot be solved by updating, we need to do some remake works, such as structure strengthening for old buildings. If a building has been destroyed and cannot be fixed, all that is left to do is removal.

(2) Land value. If the value of a post-project is less than the value of the land it occupied, or we can get profit from replacing it with a new project, the best choice is land restoration and reestablishment. For example, in China, more and more residential districts have been replaced by business districts, in the city centers.

(3) Satisfaction of functions. It refers to how the external characteristics of a post-project satisfy the demands from users. If a project cannot match social development, it needs to be updated. For example, the Shanghai–Nanjing expressway was expanded in 2003 to match the increasing traffic.

(4) Historical and cultural significance, such as the background of a project. Some buildings have unique architectural, archeological, artistic or other value, although they have no use value or are even badly damaged, we have to repair them for their historical and cultural significance, such as Suzhou gardens.

(5) Environment protection. It refers to the effect of a project to the environment. We think updating is better than rebuilding, because it will produce a lot of construction trash and pollute the environment during the rebuilding process. Besides that, we have to recover the land been used.

(6) Technical implementability, such as technical support. A post-project is usually more complex than a new project, so it is harder to construct and has higher technical requirements. Due to these reasons, technical analysis and evaluation are very important to post-project management.

4.3 Evaluation

The objects of post-project management evaluation are process, benefit and effect. It is a kind of post evaluation. It follows principles of reality, independence, comprehensive, transparency and reflective. The process evaluation focuses on the schedule, quality, and consumption of the implementation process. The benefit evaluation focuses on the social and economic benefits created by the project. The effect evaluation focuses on the social and environment effects of the project. Such an evaluation of post-project management helps improve management capabilities.

5 Case study of post-project management: the 798 art district

5.1 Background

The 798 art district is a part of Zhongguancun Science Park. It used to be an old industrial district. Since 2001, some artists have gathered and being create in this district spontaneously. They changed some old Bauhaus style plants into some creation and exhibition spaces which are full of artistic features. Until now, more than 200 art institutes have entered this district.

5.2 Value analysis

This project is an update and remake project from the perspective of post-project management. The old 798 district was a brain death project. These old plants were structurally healthy, but had no use value and were abandoned, due to the social development and economic climate change. Both the buildings and the lands they occupied have great potential value, and can be saved and refreshed by re-position and re-development. At last, this post-project became a new project and has created some new value. The values for post-project management of 798 art district are listed in Table 4.

6 Conclusions

(1) Post-project has become a common social problem in

Table 4*Value Analysis for Post-project Management of 798 Art District*

Value	Explanation and analysis
Function-economic	Save money by updating and remaking rather than demolishing and rebuilding
	Create new functions for more income, such as business, entertainment, shopping, and etc.
	Use a free space fully and create some economic value
Project-environment	Save construction material than demolishing and rebuilding
	Reduce waste and pollution than demolishing and rebuilding
	Take the advantages of the old bindings to create some green buildings, such as natural ventilation, insulation, and etc.
	Art district is more eco-friendly than industrial district
Project-sustainable development	Retain and repair the Bauhaus style buildings for the historical and cultural value
	Promote art and tourist development by creating a new art district, which is open, live and showing the modern Chinese art
	Promote surrounding area development, such as infrastructure, real estate, etc.

modern society. Post-project management is an important part of engineering life cycle management. It has a significant influence on the sustainable development of projects and our world.

(2) Post-project refers to a project which no longer possesses normal value, because of loss after use, inability to adapt to new requirements, artificial destruction, damage beyond control, and deprivation of value after the completion of the project. It includes sick project, brain death project, natural death project and sudden death project.

(3) Post-project management is oriented by its value system and based on the rules of project aging. It encompasses a series of management and technical activities including updating, reforming, removal, recovery, and recycling. The thinking system of post-project management can be divided into three levels: philosophy thinking, rational thinking, and realistic thinking. The process of post-project management is composed by classification and characteristics of post-project, management decisions, implementation, and evaluation.

(4) In future, the theories and methods of post-project management will keep up with the social development. They will become more impeccable, more specific and more practical. Post-project management is going to be a new model which can realize the sustainable development of project and society.

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References

- Chen, G., & Cheng, H. (2004). Total life cycle objective system of construction project. *China Civil Engineering Journal*, 37, 87–91
- Cheng, H. (2001). *Research on Construction Project Life Cycle Integrated Management*. Harbin: Harbin Institute of Technology
- Cheng, H. (2011). *Engineering Life Cycle Management*. Beijing: China Architecture & Building Press
- Cheng, H., & Han, Y. (2012a). Engineering management system thinking and engineering life cycle management. *Journal of Southeast University (Philosophy of the Social Sciences)*, 14, 36–40
- Cheng, H., & Han, Y. (2012b). Building of system of engineering life-cycle management. *Science & Technology Progress and Policy*, 29, 17–20
- Cheng, H., Zhang, B., & Luo, Y. (2010). A study on process and criterion of project life cycle design. *Journal of Southeast University (Philosophy of the Social Sciences)*, 12, 21–24
- Han, Y., & Cheng, H. (2010). General framework of engineering life cycle design. *Science & Technology Progress and Policy*, 27(19), 32–35
- Han, Y., Hu, J., Zha, S., & Cheng, H. (2011). Key theory and application of transformer substation life cycle design. *Electric Power*, 44, 23–26