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Application of KRAs Theory in Concept Design Phase of a Banknote Plate-making Workshop Construction Project in China

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Abstract

The uncertain nature of modern society results in a complex project management context, especially in the concept design phase. There is a critical demand to focus on key areas which can directly contribute to short-term objective and assist in long-term success of project.
This reflective paper analyzes key failing factors of a construction project which relates to the Banknote Plate-making workshop in China. Based on the actual condition, the technique of KRAs is applied to identify essential management areas and performance gaps between project team and benchmark. Some measures are recommended to fill the gaps and improve performance in the future projects.

Key words: Project, Concept design, KRAs, Performance gaps, Performance improvement

1.0 Introduction

The prevalence of complex and unpredictable business environment has become a consensus in the modern world. There is no exception in project management area. The conceptual phase, as the most variable stage, consists of many uncertainties and challenges. It is important to maintain focus on key areas which can directly contribute to short-term objective and assist in long-term success of project.
Key Result Areas, as an effective management tool, can be applied to assess project performance in identified areas and adjust working method towards difficulties and emphases of the project. Based on the discussion about failing reasons of the Banknote Plate-making workshop project, this article uses KRAs to evaluate the project performance in six key areas. After gap identification, this study concludes with some suggestions which can be used to improve relevant performance in the future projects.

2.0 Theoretical Background

Key Result Areas (KRAs) can be described as general areas which are crucial to achieve project success (Handique 2014). Instead of specific task, KRAs focus on outcomes which derive from daily routine. Typically, KRAs consist of four to six major outputs which can directly contribute to phase target during the next six to twelve months (Nemma 2015).
Using KRAs to manage team performance can provide a clear direction for project team and maintain their focus on key works to improve work efficiency. In general, the overall assessment process includes:

- Identify KRAs. Identify 4 to 6 KRAs which are critical to promote the development of project during the next 6 to 12 months.

- Set Goals. For each identified KRA, setting specific goals and standards to be used examine the performance of project team.
- Rank and Compare. For each KRA, ranking the team performance and making comparison with benchmark which is required to achieve the project success.
- Make performance improvement plan. On the basis of gap analysis, make a feasible improvement plan which relates to KRAs.

3.0 The Workshop Construction Project

3.1 Project Background

In 2011, a Banknote Plate-making workshop construction project was planned by Beijing ZH PLC, which is a subsidiary of PB Company of China. Objective of this project was to develop a world-class Banknote Plate-making workshop within 80 million yuan and five years. The project was too complicated. Firstly, there were a huge number of elements as well as interdependencies which should in accordance with the banknote plate-making processes. Secondly, many special designs were required based on the production need, such as anti-corrosion, dust free, constant humidity, and so forth. Thirdly, 6 million yuan was provided by PB Company, and the rest of loan was obtained from commercial bank. Therefore, the workshop development had to get the approval from the Construction Office of PB Company. Finally, the pollution nature of future products from this workshop forced us to get extra approval from the environment department of local government.

3.2 Project Management Approach and Performance

I participated in this project in 2012 when the project was in the conceptual phase. The objective of this stage was to reach a consensus about the design of the workshop with internal and external stakeholders, and obtain relevant approvals.

3.2.1 Team Structure

The project team consisted of five members who came from different departments in our company. Their background and responsibility in this project are illustrated in Table3-1. In addition, executive manager was directly in charge of communication and negotiation with the local government on the basis of project information we provided. It is worth note that all these team members were involved in this project without reducing their own workload and any extra reward.

Table 3-1

Team Member	Background	Responsibility
Project Manager	Director of the Business Management Division	Communicate with all division directors, executive manager and the Construction Office of PB Company
Consultant	A 50-year veteran, who had experienced the construction project of the existing workshop ten years ago	Share knowledge and experience like a mentor
Coordinator	Work experience about project management	Coordinate between project team and other divisions
Accountant	Certified Public Accountant	Provide financial support
Assistant	Bachelor degree of Engineering Management	Assist team in minute taking, sorting and dispersing

3.2.2 Internal Management

After the project approval was authorized by PB Company, the consultant created a set of concept design based on the construction data of the existing workshop. Following the concept design, we decided to develop regular conferences to facilitate discussion, and finally make a consensus within our company.

Initially, the conference was held by the project manager every two weeks. All department directors of our company were invited to put forward their requirements and opinions about the concept design. During the first few meetings, the consultant was responsible for introducing his design to all presented people, including scale, layout, equipments, and so forth. After that, directors brought these ideas back to their departments and made some revisions which are related to their production. All revised opinions would be discussed in the next conference.

The conference process was expected to complete within one year and we could move the project to the next stage, while it still did not reach an agreement until the project was terminated. On one hand, a lot of conflicts occurred with the discussion going increasingly in-depth. For our consultant, he only accepted to make a slight change without destroying the whole design. Therefore, he rejected the majority of revised proposals with strong personality. For other divisions, the concept design was outdated and there were many innovative technologies could be substitutes to achieve better outcomes. On the other hand, the project manager could not mediated the conflicts effectively between the consult and other departments because the lack of project management background and work experience in our company. As a result, the conference was adjusted to be held once a month to avoid more disputes, which in turn greatly delayed the progress of the project.

3.2.3 External Management

The project proposal was created and sent to PB Company in November 2011. However, it was not approved until May 2012 due to personnel change of its Construction Office. During that period, the project manager contacted the new director twice but got no answer. She finally decided to let the business take its course.

On the other hand, the executive manager made an oral land-leasing agreement with the local government in October 2012. The formal contract was proposed to sign after the evaluation about pollution indicators in our concept design. However, a revised 'Environmental Protection Law' was published suddenly, and the index of pollutant emissions became stricter than before. We were busy with internal disputes without contact the local government to negotiate a solution about the new policy immediately. After four months, the government informed us that the total amount of pollutant emissions in the industrial district had fulfilled the new quota, and thus no more contaminative factory would be allowed to construct.

3.2.4 Key Events and Result

Key events and final result of the project are showed in Table3-2. The project was proposed in 2011, and eventually suffered a failure in 2014.

Table 3-2

Time	Event
11/2011	The project proposal was sent to PB Company
05/2012	The project proposal was authorized.
10/2012	The local government made an oral approval of the land leasing with our company.
02/2013	A concept design was developed by the consultant based on the past project.
03/2013 –05/2013	The conference was held every two weeks to discuss the concept design
06/2013 –08/2014	The conference was held every month to discuss the concept design
04/2014	Revision of 'Environmental Protection Law' was published.
08/2014	The local government abolished the land-leasing approval
10/2014	The Construction Office of PB Company decided to terminate the project.

4.0 Lessons Learnt

4.1 Reasons for Project Failure

There is no doubt that we can blame the change of policy for the project failure, but what if we could deliver the concept design on time, before the change of 'Environmental Protection Law', or before the full of pollutant quota? Reviewing the whole process, apart from the objective factor, there were some reasons which caused the project failure jointly.

- Loose Team. Although the project team was appointed by executive manager, we had been working in our departments respectively, except the company-wide conference. It was less likely to create a common commitment among team members. In addition, there was no clear team charter which all team members must comply to promote communication and avoid conflicts.
- Weak Communication. Both internal and external communications were inefficient. Within company, the strong personality and past experience of our consultant inhibited creativity of others. A few times meaningless disputes latter, people even did not want to attend the monthly meeting. On the other hand, insufficient contact with PB Company and local government was another reason which leaded the project failure.
- Knowledge Bias. The project reached a deadlock which derived from the mutual bias between our consultant and other departments. People argued that our concept design was outdated, whereas the consultant maintained that their ideas were unrealistic. It can be perceived as a knowledge contest between past experience and innovative technologies.
- Poor Management. The project was out of control not only because of the direct disputes but also due to the incompetent manager who cannot bring the project back on track. Basically, there was no effective project management plan prior to the project launch. The project manager attempted to avoid rather than solve the problem through reducing the frequency of meeting. Additionally, the vague direction resulted in a dilemma that we did not know how to contribute to the project objective.

4.2 Improvement Measures Using KRAs Theory

Given the above, there was a critical need for adjusting our working style to deliver a determined design on schedule which was the objective of the concept phase. The purpose of using KRAs theory is to prioritize work and improve performance in relevant areas.

4.2.1 KRAs Identification

In line with the objective, six key result areas are identified with the following reasons:

- Scope Management – Provide a clear direction and priority to improve work efficiency

- Time Management – Ensure the concept design can be completed as planned
- Human Resource Management – Create team commitment and maximize the value of project team
- Communication Management – Encourage internal and external collaboration to promote the development of concept design
- Risk Management – Improve success probability and minimize failure loss
- Knowledge Management – Combine past experience and new technologies appropriately to develop an optimal design

4.2.2. KRAs Assessment

According to the above analysis, Table4-1 provides the examination criteria, benchmark and our rank in each KRA. Apparently, the biggest gap existed in time management area as well as communication management area which are the most significant areas in this concept phase. Another emphasis should be attached to systematic risk management plan which aims to avoid nonfeasance or misfeasance in the fast-changing environment.

Table 4-1

KRA	Examination Criteria	Rank	Benchmark
Scope Management	A clear goal An organized work breakdown structure with prioritization The ability to adjust scope in line with the change of environment	Involved	Competent
Time Management	A rational schedule Team execution of project schedule The ability to adjust schedule in line with the change of environment	Involved	Best practice
Human Resource Management	A competent project manager A collaborative project team Clear definition of role responsibility , authority and limitation	Involved	Competent
Communication Management	An open environment to discuss and communicate Communication strategy Sufficient and timely communication The ability to make decision, solve problem and manage conflict	Involved	Best practice
Risk Management	The ability to identify and assess potential risks Risk mitigation plan Clear trigger and responsible party The ability to reassess risks and adjust mitigation plan in line with the change of environment	Informed	Competent
Knowledge Management	The ability to identify and capture valuable knowledge An open environment to share knowledge Overcome knowledge bias Apply knowledge into design proposal	Involved	Competent

Note: According to the level from low to high, the rank is identified as Aware, Informed, Involved, Competent and Best practice.

4.2.3 Improvement Measures

Cicmil et al. (2006) pointed out that project performance derives from systemic interdependent behaviors. Therefore, a series of activities which should be increased, adjusted or stopped to contribute the delivery of concept design are listed in the following section.

- **Build Effective Team**

Firstly, the executive manager should change his attitude about the delivery of concept design. Instead of a casual easy job, it is vital to promote the project forward and difficult to develop an optimal scheme in the companywide level. There is a critical need to properly reduce the existing workload of team members and promise them at least one day in a week to develop the concept design. For one thing, it can help to build good relationship in a relatively fixed

working environment. For another, it is conducive to create commitment among team members as a hygiene factor (Herzberg 1987). Secondly, responsibility, authority and limitation for every team member should be defined in the initial stage of team formation. It should provide a clear guideline about what they are expected from this team and how they can devote themselves to achieving the best outcome. Finally, A team rule is required to be established when the team was built. As a motivator, team members can be granted additional authority with their expertise, whereas the project manger must monitor and control the project performance with a holistic view.

- **Develop Project Management Plan**

A systemic project management plan can be seen as a repository of collective intelligence, which guide people complete a series of tasks in line with the final objective. For this project, the first thing we need to do is creating a clear scope statement and breaking the objective of achieving concept design into many achievable work packages, such as obtaining approval, negotiation with other divisions separately, demonstration of new technologies, and so forth. Then, it is important for us to develop a timetable as well as milestone plan. Each work package as a control point should be created with its completion time and responsible party (Larson & Gray 2011).

Another essential requirement for this project is to develop a detailed risk management plan, including risk identification, assessment, treatment and monitoring (Kohlmeyer & Visser 2004). This process can involve the company-wide people and ask for advice in different professional fields. This plan should be reviewed and adjusted as some new risks become predictable, such as the impact of revised 'Environmental Protection Law'.

- **Improve Communicate and Knowledge Management**

According to M. Winter et al. (2006), project should be perceived as a social process rather than instrumental activity in this complex world. Instead of arbitrariness, the consultant needs to understand the value of creative knowledge which derives from practice among other departments. On the other hand, people should view the original design as a model which reflects experience and lessons from previous project. Therefore, the project manager has responsibility to create an open environment which can encourage discussion and resolution of the dispute as early as possible, rather than undertake repair work until the situation is out of control (Wetlaufer 1994).

With respect to the feasibility of new techniques, the project team can organize forum or workshop as required. Apart from people within our company, external experts and suppliers should be invited to share practical knowledge which can assist in verification of innovative concepts. To some extent, this network can integrate our requirements with the world-leading technology and broaden our perspective about infinite possibilities of the concept design.

- **Review Project Performance**

Periodic review is an effective and efficient way to find out performance variances and make adjustments in a fast-changing environment. Collective review allows people to share information about their latest achievement and problem, and summarize an overall impact on project progress. Generally, project meeting is the most common way to review within a

project team. For this project, face-to-face conversation is recommended to implement reflection between project team and other directors. Not only because it can solve the problem of their different working schedule, but also can review their specific problem directly to enhance work efficiency. Apart from the benefits for organization, regular review can encourage people to think about what they did well, what they did not and how they can do better, which in turn can improve individual performance as well.

As Ramgopal (2003) noted, the earlier stage, the greater uncertainty involves. Because the uncertain nature of concept phase, the process of review should be more frequent until the concept design is delivered. After each reflection, the project team should make decisions about whether they need to change schedule, reallocate resource, reassess risk, and so forth.

- **Always Being Proactive**

As mentioned above, one unexpected event tends to trigger a series of changes during the project process (Laufer 2015). Therefore, the project team should always maintain vigilant against external changes and take actions as needed. For example, the project manager should take the initiative to contact with the new director of the Construction Office in PB Company to promote the development of approval, rather than wait without any action. Similarly, the project team should pay more attention to the revision of 'Environmental Protection Law' and negotiate with local government as soon as possible. Meanwhile, we need to intensify the research of new techniques which can reduce the emission of pollutants. Although some events are unpredictable, we still can convert unexpected events into expected results through taking proactive actions.

5.0 Conclusion

This article examines some principal factors which cause the failure of our Banknote Plate-making workshop construction project, not only objective condition but also team performance resulted in this tragedy. Based on the complex and variable environment in concept stage, six key areas and corresponding performance gaps are identified using the technique of KRAs. Suggestions which refer to KRAs consist of building effective team, developing project management plan, improving communicate and knowledge management, reviewing project performance and always being proactive. Although the project has been stopped in 2014, these lessons still can be applied in the future to improve similar project performance as knowledge reserves.

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