Title The Application and Improvement of Project Integration Management in IT Project

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The Application and Improvement of Project Integration Management in IT Project

Abstract: Project Integration Management(PMI) is a key concept and skill that is the hallmark of project management professional. It includes the processes that are required to ensure that all the various elements of a project plan are properly coordinated. The key is coordination and integration. Using PMI, all the pieces of a complex project plan fit together. This is how we balance the three constraints in project management: scope, time, and cost. Therefore, in this paper we discuss the current development in project management technique and the importance of PMI. Continuing the discussion by presenting the basic concepts within this field. And details the problem by providing related samples. Finally, we reach the conclusion, indicating that PIM plays a much more important role in project management than ever before. Yet PIM still has its own problems, we also propose some improvements for these problems.

Keywords: Integration Management, Application, Problem, Improvement

项目综合管理在 IT 项目中的应用与改进

摘　要： 项目综合管理是项目管理中的一个重要概念，也是项目管理专业人员的一个重要标志。它包括了那些用来保证项目中的所有元素都能合作的很好的过程，其关键点在于合作和综合。通过项目综合管理，一个复杂项目中的所有内容都会很好地结合在一起。这就是我们用来平衡项目管理中的三个限制条件：范围、时间和成本的方法。因此，本文讨论了项目管理技术当前的发展及项目综合管理的重要性。然后，我们通过一些相关的例子来阐述项目综合管理中的基本概念。当然，项目综合管理也有其固有缺点，我们也为此提出了一些改进措施。最后，我们得出了项目综合管理会在以后的发展中扮演越来越重要的角色的结论。

关键词：综合管理，应用，问题，改进

1. Introduction

A successful project manager must have a broad and comprehensive knowledge system on project management. Within the body of project management knowledge, project integration management plays a particularly important role, which keeps managing the whole project from the initiation of a project to the closing of it.

To accomplish such an arduous mission, project managers also demand the help from professional project management techniques, such as the calculation of Net Present Value(NPV), Return of Investment(ROI) or project management software Microsoft Project. Thus, it this paper, we also present the way on how to use NPV in project management.

Furthermore, project integration management leads the development, which be interwoven with other project management knowledge fields. Therefore, we also discuss the involvement of other knowledge, such Project Communication Management(PCM) and the other.

However, as the saying goes, every man has his fault. PIM will not be an exception. With the participation of all stakeholders which will possible introduce all kinds of factors, the development process would emerge countless problems inevitably and continuously. Consequently, to settle down these problems, a project manager also needs to have a clear understanding of the problems of PIM. As a result, we also discuss its problems and present some general improvements for it.

2. Basic Concepts in PIM

Before we start our discussion, we should understand some of the basic concepts within the knowledge field of PIM. The major mission of PIM involves the action on coordinating all stakeholders, all project management knowledge fields, all management process, and all constraints. To visualize it, we present its content in Figure 1-1.

If a project manager wants to lead the project development in a harmonious way, he also need to understand the content of interface management, which involves the identification and management of the interactions between all participants in Figure 1-1.

To satisfy all stakeholders, the context for which project manager carries out his work, must be the whole organization. In Figure 1-2, the PIM lifecycle can be regard as the whole life cycle, which keeps alive from the very beginning to the end of this project. Moreover, a project originates from only the internal of this organization, and it will have its own interweave with another project. For example, to develop a project charter, a project manager must communicate with those higher-level managers. If his new idea would lead potential damage to the future of the whole organization, this idea would not be permitted in large probability.

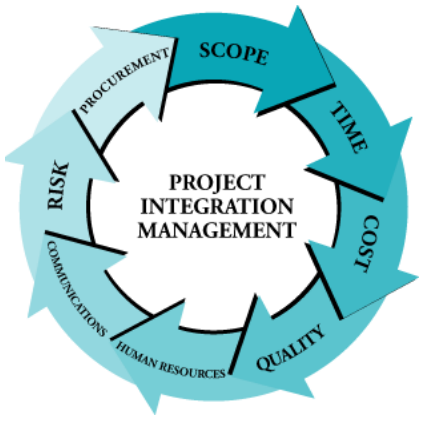

Figure 1-1 The Content within PIM

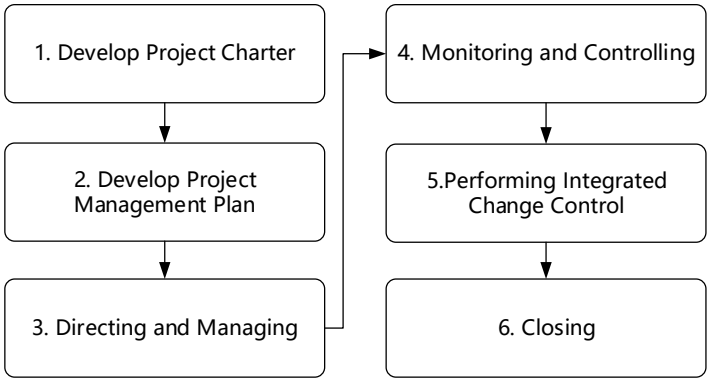

Figure 1-2 The PIM lifecycle

Hence, developing the vision of overall situation with a good understanding of both the content and lifecycle of PIM becomes the mandatory course in the way to become a successful project manager.

3. Application and Role within Lifecycle

As we have discussed above, PIM in charge of all the coordination work within the whole project cycle. Its role could be regarded as lube in machinery, which reduce the collision between different departments as well as different projects. Each phase in PIM lifecycle has its own application and role. We will discuss it detailly by presenting related sample and explanation.

3.1 Select a Profitable Project

The most important way in selecting a profitable project will be the calculation of the NPV and ROI of target project.

The idea of NPV encompasses the concept of the time value of money and takes into consideration that money spent or obtained in future periods will have a different value than money spent or obtained in the present. The formula is list below.

$$NPV = \sum_{t=0}^{N} \frac{CF_t}{(1+r)^t} \quad (1)$$

In formula 1, CF represents the **cash flow** of this project, r represents the **discount rate**, and t represents the **time** calculated by year.

Moreover, there are other ways to make detect the potential profitable project, such as ROI. Relatively, the calculation of ROI is much simpler than NPV (See the formula 2).

ROI = (Total discounted benefits – total discounted costs) / discounted costs (2)

To make the illustration simple and clear, we use an example (Kathy, 2015) to explain the usage of NPV and ROI analysis.

Table 2-1 NPV and ROI Analysis

Discount rate	8%				
Assume the project is completed in Year 0					
	0	1	2	3	Total
Costs	140000	40000	40000	40000	
Discount factor	1	0.93	0.86	0.79	
Discounted costs	**140000**	**37200**	**34400**	**31600**	**243200**
Benefits	0	200000	200000	200000	
Discount factor	1	0.93	0.86	0.79	
Discounted benefits	**0**	**186000**	**172000**	**158000**	**516000**
Discounted benefits – costs	-140000	148800	137600	126400	**272800**
Cumulative benefits - costs	-140000	**8800**	146400	272800	
NPV	**272800**		**ROI**	**112%**	

In this case, the investors get the ROI rate for 112%, which returns at Year 1. As well as, a positive NPV value for 272800, which indicates a profitable project. There, this is a profitable potential project worthy investing.

Because NPV and ROI analysis are simple to perform, project will use one or two of them to evaluate whether a project is investable. It role may be regarded as a "door keeper" to non-performing assets.

3.2 PIM lifecycle

Generally, PIM lifecycle includes 6 different phases and each phase has its own role in PIM:

1. **Developing a Project Charter.** In this phase, project manager, as well as all other project stakeholders must reach a consensus and clear understanding on the meaning of this project as well as the and definition for the time, scope and cost constraints (E Suchcicki & C Lokan, 2008). After that, project manager should document it as Project Charter.

2. **Developing Project Management Plan.** Project Management Plan is the coordinator of all project documents, and a document which guides the execution and controlling process. Without this plan, project may result in a status of "out of manage" when encounter some unexpected impact.

3. **Directing and managing.** This is the core component of PIM. Within this phase, the project manager should try his best to perform his duty as the leader, such as motivating team member, finding out the proper solutions, reporting to higher-lever managers as well as gaining support from other stakeholders.

4. **Monitoring and Controlling.** Obviously, this is another critical component with PIM lifecycle. Project manager should take regular check for all team members` work, perceiving the potential changes in or out of the project, as well as other necessary activities to keep monitoring and controlling closely.

5. **Performing Integrated Change Control.** Evidently, changes are inevitable, especially IT project is fast-iterative. Bugs will gradually come up as it is used more and more. Therefore, documenting and quick handling all the changes will be necessary in PIM.

6. **Closing.** Finally, when a project needs to be closed, project manager should gather all required information, targeted deliverables and other assets, then make a thorough or simple to all stakeholders to confirm the closing of this project.

But reaching the closing phase does not mean that this project "dies". For example, Microsoft Windows XP still has a considerable market share, as there are too many embedded devices which replacing its OS or itself is inconvenient or non-profitable. Officially, Microsoft has closed the its support for many years. But as the virus "Eternal Blue" broke out in the second quarter this year, Microsoft reopened its maintenance group, which indicates the revival of Windows XP in some old computers. In other words, this project is still alive.

4. Problems and Improvements

After presenting the application and role of PIM, we will go to discuss the problems and improvements of it.

In practice, we will meet following problems while managing an IT project (Chen, 2015):

1. **The knowledge body had fallen behind of current trend and technique.** Although the concept of project management had been introduced in to China for at least 50 years (Yang, 2010), PIM knowledge illustrated in PMBOK is still a brand-new concept in China, related training course and techniques had not grown to matured.
2. **The turnover rate of professionals is high.** Because the IT industry is developing at the light speed, a large part of practitioner is young people (Shi, 2013) who entered this IT industry for a better life. Therefore, they are volunteer vulnerable to the temptation of high salary, and make a job-hopping easily.
3. **The shortage of professionals.** Because it had not much years between the origination of project management in China and great demand today, we do not have much reserves of talents in this field (Wang, 2014).
4. **Neglecting the importance of project management.** Commonly, the leader of an IT department is often promoted from professional programmers. Therefore, those

managers may have natural flavor on tech problem, neglecting the learning of management-related knowledge.

To settle down these problem, we make following proposals in corresponding order:

1. **Introduce advanced project management knowledge and technique from other country and made proper adjustment based on current situation.**
2. **Building a stable team by offering competitive salary to those senior employees, as well as improving their felling by providing comfortable working environment or other things.**
3. **After the project team is stable, employers can offer professional training on project management skills and knowledge.**
4. **Officially attaching the importance on project management knowledge and skills.**

Above are the major problems only, there are much more problems in production. But if we do not give up making efforts on finding and solving problems, the prospective will be better and better.

5. Conclusion

In this paper, we discuss the application and role of PIM in project management by detailing its concepts and presenting related samples. As the IT industry is developing in an unprecedented speed, the shortage of professionals in IT project management will become larger and larger. Therefore, learning the project management knowledge, understanding the application and role as well as its commonly used techniques will be the mandatory course for those who wants to become the new generation of project manager.

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Thesis Evaluation for Undergraduate Students

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