Title: Project Management Standardization

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Abstract: Analyzes the technique of standardized project management (SPM) that reduces the use of a wide variety of project management techniques/software. The paper consists of two main parts. First, a presentation of the SPM concept. Second is a bibliography of SPM articles.

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PROJECT MANAGEMENT STANDARDIZATION

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In today's business environment, there has been a dramatic increase in the use of project management in many areas. Since the concept of project management was introduced, there has been an interest in improving the tools and techniques for management of one-time projects. As a result of technological advancement, and sophisticated customer demands and competitive pressure, companies need to continuously improve their product and service or bring new products or service to the market as soon as possible. Rather than only a few ongoing projects, companies are dealing with large numbers of ongoing projects at a time. Tools or techniques that focus on one-time project do not seem to be enough to manage projects effectively. For that reason, project team members have to work on several projects concurrently, the project office has to serve many projects simultaneously and management has to review virtually hundreds of projects. Clearly, a lot of problems will arise if those projects are managed differently. In response to this challenges, the new technique to manage multiple projects is being used more often. The concept, so-called standardized project management (SPM) [1], is distinguished from an ad hoc collection of project functions in many areas. This paper is separated into two parts. The first part presents the concept of SPM. The second part contains the bibliography of articles that are related to SPM.

Part 1: Standardized project management, the concept.

Although humans have been involved in project management since the beginning of recorded history, the project management was still an unknown and undefined idea until 40 year ago[2]. Project management was first applied in primarily large projects such as aerospace or construction industries. At that time, the focus of project management was solely on managing single projects. Though there were some researchers who stressed the need for multi-project control system [5.1]. From literature, in the past, the idea of standardized project management was not defined. Several articles presented the ideas which are part of standardized project management concepts. For instance, J. Middleton [3.1] presented the idea of setting up project

The basic dimensions of Standardized Project Management (SPM).

From the literature, SPM does not focus on one aspect of project management. On the other hand, SPM does focus on all key aspects of project management. SPM is a standard framework for managing projects in organization. Each project is a temporary endeavor undertaken to create a unique product or service [3]. Furthermore, every project is unique because it requires doing something different from what was done previously [2]. However, in the project process, there are many tasks that are not unique. Precisely, those tasks are repeatable tasks. By establishing a well-defined template, those tasks can be done faster and more effectively. As it was mentioned, SPM requires organization to rethink its project management processes which are incompatible among each project and not shared by project members. In SPM, organization, rather than emphasizing each project separately, should integrate projects into a pool of shared resources and harmonize planning and controlling.

There are seven general dimensions required to create Standardized Project Management

1. ***Project Management Process***

By definition, process is a series of actions bringing about a result[3]. Generally, project management processes can be organized into several groups. When an organization has a lot of projects on hand, that organization needs to create well-defined and compatible process which will be used by project managers. By utilizing the same template, resources will be shared more effectively, All project performance will be measured in the same way and, most importantly, project managers can share information effectively. There are several authors who have presented concepts of standardized process management which, actually, are part of SPM. For instance, Paul S. Adler wrote article "Getting the Most out of Your Product Development Process"[1.1] In that article, there are several companies including Motorola, HP, AT&T and others which have implemented process management standard successfully.

works in different projects. The result will not be based solely on individual projects but also an organization's goal.

There is evidence that organizations are one of the most important factors in project management. Back in 1967, C.J. Middleton wrote an article related to project organization.[3.1] He recommended that organizations that wanted to survive in the long run had to create project organization. This suggests that organizations need to strongly define their project organizations.

4. ***Project Management Methods.***

The question "how to?" always occurs in project-oriented environments. In the definition phase, middle managers have to find the right person to be project leader. Sometimes, they pick the right person but, many times they fail to put the right person on the right job. There are many processes that need to find methods to come up with the best solutions. Such activities include project selection, team member selection, role and responsibility assignment. In the SPM environment, those methods need to be clearly defined. Project members will be selected by a set of rules. For example, skills, time available or project size. Because project teams are effectively selected to be part of a project, projects will be completed faster. Project members will spend less time understanding concepts inside projects since they were selected because of their skills. Furthermore, after work authorization system is established, all members will know exactly what tasks should be performed by whom.

5. ***Project Management Metrics.***

Organizations need to create metrics which will be used in all projects. Such metrics are project evaluation, project scheduling, performance reporting and cost controlling. SPM needs a set of metrics to measure performance of all projects on the same basis. Middle management will use the same procedure to milestone each project. By doing that, middle management will spend less time comparing between different projects. It means that middle management will quickly take any necessary actions to tackle projects that have problems. There are several articles that suggest organizations set a standard metric for evaluating projects within the corporation. For example, Anton K. Dekom[5.4] presents an idea about setting a set of standard to evaluate projects.

often. To survive in a competitive environment, companies need to do things faster. SPM is an effective method to work faster. However, creating the SPM environment in organizations require resources and time. As a result, not all companies can radically apply full-level SPM to their organization. Such companies should incrementally apply SPM. Organization is different from one company to one company. There is no rule about which aspects should be applied first. It implies that standard should be created by one who really knows about it. Thus, everyone in organization should involve in developing SPM.

Literature Reviews and Categorization

Articles will be categorized to seven elements including process, software, organization, methods, metrics, organization culture and people. Cross-references between elements are included at the end of this part.

1. Project Management Process.

1.1) Paul S. Adler, Avi Mandelbaum, Vien Nguyen, Elizabeth Schwerer, "*Getting the most out of your product development process*", Harvard Business Review, March-April, 1996, pp.134-152.

The purpose of this paper is to emphasize the important of process management in product development. Within each Project in product development always has unique challenges. However, there are a lot of tasks that are not unique. Process management accomplishes those similarities through standardization creatively. The authors have studied a dozen of companies that have started to apply process management. There found three main benefits from applying process management. First, projects are done faster if organizations take appropriate numbers at a time. Second, investment to ease bottleneck bear disproportionately large time to market gain. And, third, eliminating unnecessary variation within projects and creating best-practice templates, freeing up the organization to focus on the creative parts of the task and comparing the best practices throughout the organization. Moreover, the post project evaluations opened up the bottleneck and inadequate templates. Thus, the continuous improvement process is taken into account to improve the process management. In this article, the authors have created the case study of one fictitious company which is a composite of several companies that they have studied. The case study showed how firm created the process management step by step.

1.5) Anonymous, "*Project Management Standards And Professional Certification*", WWW Project Management Forum, February 1997, pp. 1-7

Location : URL:// www.synapse.net/~loday/PMForum/standard.htm

This document lists current project management standard and certification documents which have a significant impact on project management. Documents that have been listed in this site are categorized to 4 groups. First, information Technology Standards. Second, Guides to Project Management (PMBOK's) Training and Professional Certification. Third, Project management quality standards. And forth, Project performance measurement. Each group guides to many interesting sources that provide information on project management standard.

2. Project Management Software

2.1) Roger E. Meade, "*Project Management: The Next generation*", PM Network, July, 1993, pp.38-39.

Today, project management software is widely used in project-based organization. Author described requirements of software. Because most of organizations have more than one projects on hand. Software should support multi-project management and make the project data be accessible by other users in that corporate. Moreover, software should be easy to use but powerful enough to meet requirements of tomorrow's project management. By using new effective tools, project managers will deliver more quality products by using less resources.

2.2) B. Khan, Merle P. Martin, "*Managing The Systems Project*", Journal Of System Management, January, 1989, pp. 31-36.

Project management is a discipline for making decisions, improving efficiency and mastering change. However, there are still several problems although there is project management in place. Authors suggested new generation of project management which is called "Integrated Project Support Environments (IPSE)". IPSE is distinguished from classical project management in several aspects. For example, IPSE will include a common set of project procedures used by all project teams, an integrated project master database, a collection of project control tools and reports and a unified and natural user interface allowing all teams to

2.6) Amarjit Singh, Kenneth Ebeling, *"Construction process simulation using a standardized configuration and model"*, Project Management Journal, December 1994, Vol. 25, Iss. 4, pp. 45-54.

Authors presents an framework for construction process simulation (SLAM). The purpose of this paper is to simplify model preparation, and that purpose is satisfied by the standardization afforded through the flowchart. Authors also mention computer simulation has not been used extensively in analyzing and planing projects due to the high costs of developing the simulation construction. By using the general understanding of standardized that it is applicable in most cases and is time saver, simulation model will become more useful and used technique in managing projects.

2.7) Anonymous, "*Software Project Planing*", WWW Software Engineering Institute, October 1996, pp. 1-13.

Location: URL:// www.sei.cmu.edu/technology/cmm/draft-a/a22pp.html

This article provides a framework for software project planing. The software development plan provides the basis for performing and managing the software project's activities. First, the statement of work should be performed. Then, other requirements of project management which are discussed in this article should be established.

2.8) Clayton Harrell, "*Heuristic Planning Makes The Past Current*", Electronic Design, April 1996, pp. 83-86.

This article illustrates the idea of heuristic planing. There are several companies have implemented project management systems which are standardized frameworks for development of their products. There are many reasons to create standardized database and model. Model will speed up the planning process and provide a structure for feedback to make the model more accurate.

Management Institute, authors proposed the maturity map to implement project-driven organization. The maturity map includes five steps to implement: initial, planed, managed, integrated and optimizing.

3.4) Paul C. Dinsmore, "*On the Leading Edge Of Management: Managing Organization By Projects*", PM Network, March, 1996, pp.9-11.

There is mounting pressure from many sources for organizations to abandon more bureaucratic forms of organization in favor of flexible project-based structure. There is new trend of organizations' managerial philosophy which is call "managing Organization By Project (MOBP)". MOBP is the application of project management techniques to company projects. From articles, several companies are implementing this new concept. MOBP is broad idea on doing business. In this paper, author provided the comparison table between traditional project management and MOBP which is quite similar to project management standardization. The concept of MOBP is discussed in this paper.

3.5) Paul C. Dinsmore, "*Toward Corporate Project Management - Beefing Up The Bottom Line With MOBP*", PM Network, June, 1996, pp. 10-13.

This paper is about the steps to implement Managing Organizations by Projects (MOBP). Citibank and ABB companies show the successful example of implementing MOBP. The steps to implement MOBP consist of seven steps - situation size-up, MOBP design, executive briefings, middle-management workshops, workshops for project managers and team members, PMP certification program and support for specific projects. However, each organization is different. Thus, organization might need some adjustment to those checklists. However, by implementing MOBP, there are several difficulties along the way. Those barriers are also discussed.

3.6) Robert L. Howie, Jr., "*Special Advertising Section: Competing Through Standardization*", Business Week, October 16, 1995, pp. (Advertising Section)

This paper describes the idea of standardization. Moreover, this paper illustrates history of standard and the impact of standard in international business. There are several successful

3.9) Bill Pardu, "*Critical to Success: effectively Managing Projects*", Canadian Manager, 1996, Vol. 22, Iss. 2, pp. 24-25.

This short article present an idea of effectively managing projects in organization. Many project oriented companies have an incomplete understanding of the change involved in implementing projects and how to manage them. Organizations should complete business process reengineering before developing supporting system. Most projects need a suitable progress report. The report must contain information such as time, budget and outcome. Moreover, the communication system should be established.

3.10) Anonymous, "*Organization & Delegation - A System Approach*", Project Management Quarterly, March 1983, pp. 49-53.

Organizations are created to accomplish objective. Subsystems within organization should have a relationship which means each of subsystems should have its own derivative objectives which are supportive of the organization objectives and not in conflict with each other. Moreover, within organization, project managers must mutually accept the project documentation and establish the interface among them. The authority, responsibility and accountability relationships should be in place.

4. Project Management Methods

4.1) William R. Duncan, "No Code, No Key", PM Network, August, 1996, 8-11.

This article provides a view of project typology which will help organization develop a mechanism to match project to project manager. The association of Project managers (APM) has developed a model typology which identifies project to be four categories - an in-house project involving a single disciplinary team, am in-house project involving a multidisciplinary team, a multicompany multidisciplinary project and a multicountry multicompany multidisciplinary project. The author suggested that such categories are not enough. Other dimensions should be included in the project manager selection procedure.

more attention on managing the set of projects, whole product development process clearly improves. In this case, projects have been divided into five categories- derivative, breakthrough, platform, R&D and alliances & Partnership. Then, resources are allocated according to its desired mix of projects. By developing aggregate project plan, unnecessary projects are canceled. The result of implementing aggregate project plan is impressive. The productivity improve by a factor of three. However, author mention developing aggregate plan is not easy. It requires hard choices and discipline. Once an aggregate plan is developed, organization will have clear direction to the overall development process.

4.4) Adriano De Maio, Roberto Verganti, Mariano Corso, "*A Multi-Project Management Framwork For New Product Development*", European Journal of Operational research, 1994, Vol. 78, pp. 178-191.

Today, the increasingly demanding markets and the more rivalry in the market, new product development project becomes a crucial issue for organization to deal with. Since new product development processes have features of complication and inter-functionality that make project management appeal to be suitable. However, in fact, most organizations do not deal with one project at a time. Resource interdependencies and input/output interdependencies force companies to focus on integration among projects which called Multi-Project Management Systems. Author presents a model that suitable for high tech industries. This model focuses on helping decision makers to evaluate individual projects, control project portfolio as well as classify multi-projects. The factors that have been used in this model are relevance, risk and critical resources.

4.5) Sarwar A. Samad, "*Fast-Track Management for Project with Multiple Sites*", Cost Engineering, May, 1994, pp. 17-23.

This paper deals with fast-track management for projects with multiple sites. Fast tracking a project is when activities that are normally done in series are done in parallel. For successful implementing fast tracking a project, several changes should be done. For instance, reorganizing and hire more trained staff, improving communication, standardize design

framework for selection of project management attitudes. Moreover, author recommends project managers to appropriately classify projects because frameworks for manage projects are different based on level of technological uncertainty.

4.9) Merrill S. Brenner, "Practical R&D Project Prioritization", Research and Technology Management, Sep-Oct 1994, pp.38-41.

Author presents method to prioritize multiple R&D projects. The goal for R&D prioritization is to select winning projects. First, criteria selection should be established. Then, criteria will be given weight. By using pairwise comparisons, wining projects will get higher scores. Thus, it will be easier for management to give funds to those winning projects. Conclusively, this framework provides a superior approach to deal with limited resources and permit more of the best projects to be completed.

4.10) David Partington, "*The project Management of Organizational Change*", International Journal of Project Management, 1996, Vol. 14, No. 1, pp. 13-21

This article widely discusses about new project management approach. However, there are several parts related to project management standardization. Author mentions the need for project management systems solutions for monitoring and controlling the allocation resources in a multi-project environment has long been a concern of the project management profession. In general, multi-project system will support project management in long run. Moreover, information processing systems reinforce bureaucratic principles.

5. Project Management Metrics

5.1) Robert A. Howell, "*Multiproject Control*", Harvard Business Review, March-April, 1968, pp.63-70.

The authors examines the use of multi-project control to improve conditions in a company. The number of projects in serious problems dropped to zero within two years after company implemented this method. First, the standard program plan must be developed. Then, during life cycles of project, standard reporting system must be developed and updated regularly.

5.5) Wonzniak, Timothy M., "*Efficient Control of Multiple small projects*", AACE transactions, 1991, pp. F10(1)-F10(6).

An efficient method is presented for establishing system that can determine small project cost and schedule controls. Moreover, this method will help project manager forecast of expenditures toward yearly budget. Base on this method, a set of standard milestones must be established which will be the same for all projects. Then, the next step is to determine their order and relationship to each other. Finally, author mentions the standard should be modified yearly to reflect performance the previous year. There are three key elements of effective implementation of the system.

6. Project Organizational Culture.

6.1) John P. Kotter, "*Kill Complacency...*", Fortune, August 5, 1996, pp.**

This article emphasizes the important of culture in organization. Author also mentions the change is still needed in many organization in the future. Self-satisfied might have negative effect on leading organization to survive in the future. Six reasons which help explain this kind of self-satisfied are discussed. However, author mentions creating urgency can remove the complacency. The ways to create urgency are included in this short article.

6.2) Anthony F. Cocco, "*Using Performance Goals to Motivate Workers: A Practical Guide for Project Managers*", Project Management Journal, June, 1993, pp. 53-56.

There are many methods to motivate workers in project management. Goal-setting is one of those methods. This article suggests that goal-setting is an effective motivational technique. To make goal-setting more effective, author reviewed psychology literature and found ten-step program. Psychology literature also answer most common questions to set goal. However, no technique is universal remedy. Project manager need t set a goal that is suitable with their team.

in this paper. By knowing the type of teambuilding style of project managers increases the chance to select the right person to control each project.

7.3) Neal Whitten, "*Attributes of The Successful Project Leader*", PM Network, June, 1996, pp. 29-34.

Author found some common characters of successful project manager. In the beginning of this article, author give the definitions of project leader. Moreover, author asks reader to verify his idea by comparing those common characteristics with reader's leader. Fifteen common characteristics of successful project leader are proposed in this articles. Conclusively, author emphasizes that everyone can improve to be effective leader.

7.4) Ronald G. Read, "*The Engineering in Transition to Management*", IEE Solutions, September 1996, pp. 18-23.

This short article focuses on the team effort. To be and effective leader, manager needs to have skills to handle many challenges. Author mentions teams should have steps or processes that everyone agrees upon and implements in the same way. This will reduce the time to solve problems by having a effective set of problem solving skills. This paper also includes the many issues that manager needs to take into account when she or he has to manage a team.

7.5) Eric Olsen, "*Do It Better*", Success, March 1992, Vol. 39(n2), pp. 35-38.

Project Management is a discipline for making decisions, improving efficiency and mastering change. Project management's most basic task is to clearly define a project's goal. Then, one of three basic approaches which are functional, project team and matrix is chosen. Other important factors are team and tools. Basic rules to select people are discussed. To break projects into measurable and controllable tasks, project managers need to choose between several project management tools. Most of project management tools are included in available project management software package. Finally, author recommends that project managers, by having a database, should think of each completed project as a model that con be applied to future projects.

Article No.	Process	Software	Organiz-ation	Methods	Metrics	Culture	People
5.1	m		m		**M**		
5.2				m	**M**		
5.3	**M**				**M**		
5.4				m	**M**		m
5.5	m				**M**		m
6.1			m			**M**	m
6.2						**M**	m
6.3						**M**	m
7.1			m	m			**M**
7.2				m			**M**
7.3							**M**
7.4			m	m			**M**
7.5		m	m	m	m		**M**