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Project Scope Management Through Multiple Perspectives: A Critical Review of Concepts

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Abstract. Project scope management is a main function in project management process. Moreover, it is a critical function because any changes or modifications in scope will cause extra cost on the total project development expenses. In addition, scope management ensures the successful management of other key project management areas, including time, cost, and quality. There are six main steps in scope management process namely; plan the scope, collect the requirements, define the scope, create work breakdown structure (WBS), validate scope and control the scope. These processes been highlighted in different scale in project methods and standards.

INTRODUCTION

Project Scope Management is a very important function which can impact the level of the project management success and it is considered one of the most important function that's need to be accomplished by project manager [1]. Accordingly, a failure or uncertainty in project scope management process is directly reflects in the cost, time and quality of the project [2]. The magnitude of the impact can vary from one project to another, however, it's could be very significant in mega projects. Many scholars in project management field for many years have focused in studying project success factors [3]. However, the area of scope management still requires further exploration and investigations. Therefore, almost all project methodologies consider the scope management a fundamental element or tool [4].

Project scope management process contains the procedures which confirm that project will be completed as planned and intended if it is only comprises the required work [5]. Moreover, defining and controlling the main components of project scope by illustrating what and is not going to be part of scope is a major sector of scope management process [5]. It is like a one package used to fulfill the main purpose of the project. So, it is a comprehensive formulation of a continuous and systematic approach to be used during the execution phase of a project to complete the project objectives and accomplish the driving business need [2]. Theses process are divided to six main steps which are; conceptual development, the scope statement, work authorization, scope reporting, control system Process and project closeout [6].

On other side, Project management institute (PMI) process highlighted scope management as indicted in Figure 1 which are also in six steps namely; plan scope, create work break down structure, collect requirement, validate scope, define scope and control scope [5]. This article will use this definition of scope management as main process because PMI carries the label "Global Standard" on its cover, as well as it labels itself among other organizations as

a "standard and guideline" [7]. In general, there is no methodologies better than the other, but the degree and level of project analysis acceptance could lead to select best tool to achieve all targeted goals successfully [8].

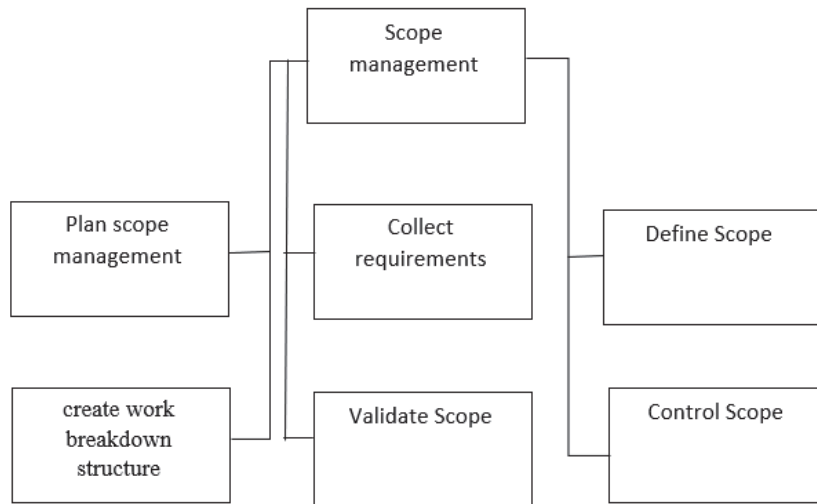


FIGURE 1. Scope management process [5]

THE PROCESS OF PROJECT SCOPE MANAGEMENT

Scope management process are key step in project management. These processes are divided in to six main steps as showed in figure 1. However, defining the scope considered as the main step in these processes because the scope of the project generally defines the limitations of a given project, chooses what deliverables are in and what are out of scope of the project and it defines how work will be plan [9] [10]. There will be an expected level of difficulty in project development process, If there is any shortfall in shaping and determining the scope of the project in first stages of a project's life cycle [11]. Therefore, if there is failure in managing the scope it will result as scope creep. The scope creep is the uncontrolled and unexpected changes in a project which will cause time and cost overrun in the projects and perhaps the projects are terminated for these overruns [12]. To manage the project scope the following steps, need to be effectively obtained.

1. Plan the Scope

The scope management plan is generated in this phase, it documents, define and describe the intended project scope as well as specifying how the scope will be validate and control [13].

2. Collect Requirement

The project stakeholder's requirements and specifications are collected, documented and managed in this phase with one major goal which is achieving project objectives [5]. The list of project requirements is generated through an in-depth investigation process with clear target of including and not leaving hidden items [13]. Moreover, it works to minimize unexpected changes – scope modification / scope creep - in the project life cycle [14].

3. Define the Scope

A comprehensive full description of the project and its key required deliverables are the main purpose of this phase with indicating what can and cannot be achieve and accomplish in the project [13].

4. Create Work Breakdown Structure

The project components are separated into essential elements aiming to ensure that all required deliverables are involved and these elements will represent the scope of work in a hierarchical breakdown structure [1] [10]. Moreover, this step makes scope creep is mostly to be minimized at low level through linking cost, time, and resources requirements with each deliverable with clear framework and charts [10] [14].

5. Validate Scope

The project quantified deliverables are checked and tested based on the project defined and planned requirements [1]. Also, it focuses primarily on project owner acceptance and it is confirmed only when the project owner formally accepts authoritatively all the project deliverables [13].

6. Control Scope

The changes and modifications in the project scope is evaluated and monitor based on the scope baseline in this phase [5]. Moreover, any new or additional requirements inquired by the project owner is evaluated based the project scope [13].

REASONS FOR SCOPE MANAGEMENT

Scope management process involves clear communication tools to ensure that stakeholders and project team members have similar understand of the scope of the project while approving on how the project goals and objectives will be obtained. There are many reasons of having scope management process which all mainly focusing on managing and controlling the project scope [13]. The following table summarized some of these reasons.

TABLE 1. Reasons of Having Scope Management Process

No	Causes
1	Avoid challenges during the project execution phase especially when there is a new or amendment on the scope.
2	Clearly in determining "what is" or "is not" included in the project.
3	In the execution phase it controls and monitor what gets added or removed
4	Establishes control instruments to address factors that may result in changes during the project lifecycle.

Without having the project scope management process, the cost or/and time will be difficult to be control, and scope creep will exist. Moreover, the project may lose its credibility if it is unable to control the planned budget or timescale and when it has lost credibility, the stakeholders are more likely to cancel the project [15].

SCOPE MANAGEMENT IN DIFFERENT PROJECT MANAGEMENT METHODS AND STANDARD

Project Management Body of Knowledge (PMBOK) and Projects IN Controlled Environment (PRINCE2) are most widely used project management methodologies in the world [17]. Moreover, International Project Management Association (IPMA) considered one of the leading project management practices beside the PMBOK

and PRINCE2 [18]. There are other international recognized standards such as International Project Management Association Competence Baseline (ICB), Project & Program Management P2M and SCRUM methodology.

These methodologies and standards have cover the scope management area from different perspective in different way and weight. Starting by the PMBoK and PRINCE2 which have recognize scope management as the key project performance parameters [7]. Based on project planning process group on the PMBoK to accomplish the project objectives; the scope of project needs to be established, project objectives need to be refined and action required needs to be defined [7]. Moreover, PMBOK has given more attention to finish every planning process at the beginning of the project process including scope plan and it recommend to start work of project development only when planning is finished [8].

In contrast, SCRUM generates usually scope creep and lives with it because there are a regular and repeated changes on the scope by the stakeholders through process called a sprint which start by asking for changes or adding more requirements on the scope after the project start [8]. Simply, its main concern to start the development and it is a framework for developing and sustaining complex products [19]. International Project Management Association Competence Baseline (ICB) sets a quality standards and requirements as baseline to achieve and fulfil the project deliverables (scope) within time frame and cost controlled operation [20]. The scope in ICB indicated in execution phase with no specific procedures as scope management [20]. However, in Project & Program Management P2M the part which heighted the scope manage is Project Objectives/ Goal Management which concerns with meeting or exceed stakeholders satisfaction by attaining scope and quality within time and budget [21].



FIGURE 2. P2M [22]

It is worth to indicate that The Association for Project Management APMBOK have in Execution the Strategy the method contains scope management process [21]. On the other side, PRINCE2 is similar to a construction management method not as is a complete project management methodology, so fairly it is an implementation methodology which not start with original need; therefor, the new requirements added to the project as solution generating or feasibility studies and it can be considered as separate projects in their own right [16]. For that reason, PRINCE2 project managers founded in a study that they have not have any thoughtful worries about the scope of their projects management [7].

TABLE 2. APMBoK [22]

Project Management in context ^o				
Project Management		Project Context		
Portfolio Management		Project Office		
Planning the strategy				
Project Success Criteria and Benefits Management		Project Management Plan		
Stakeholder Management		Risk Management		
Value Management		Quality Management	Health, Safety & Environment	
Execution the Strategy ^o	Techniques ^o	Business & Commercial ^o	Organisation & Governance ^o	People & the Profession ^o
Scope Management	Requirements Management	Business Case	Project Life Cycle	Communication
Scheduling	Development	Marketing & Sales	Concept	Teamwork
Resource Management	Estimating	Financial Management	Definition	Leadership
Budgeting & Cost Management	Technology Management	Procurement	Implementation	Conflict Management
Change Control	Value	Legal Awareness	Hand-over and	Negotiation
Earned Value	Engineering		Close-out	Human Resource Management
Information Management	Modeling & Testing		Project Reviews	Behavioural Characteristics
And reporting	Configuration Management		Organization Structure	Learning & Development
Issue Management			Organizational Roles	Professionalism & Ethics
			Method and Procedures	
			Governance	

In summary, Comparing with PRINCE2, P2M does not specify its scope only on IT projects. Though PRINCE2 also covers non-IT projects, but it mainly emphasizes on projects related with IT. ICB is more on behavioral competencies of people, whereas P2M concentrates more on its philosophies of theories, ideology and mindset of the project managers [21].

CONCLUSION

This paper has summarized project scope management process and how this task been viewed form difference methods prospective. Project management is a dynamic business method and standards, but the project scope part has to be freeze at the beginning of the project to accomplish the project goals and objectives effectively.

Scope of work is differently viewed by these methods and standard; it is viewed by PMBoK as a full details list of works; so further change is difficult but in Scrum it is an approximate list of projects works [23]. It normally to be discussed and debated many times by project owner and development team as project going on [19]. ICB indicated the scope only in execution phase with no specific procedures as scope management, as well as P2M does not specify its scope only on IT projects [20][21]. In other side, PRINCE2 have recognize scope management as the key project performance parameters [7].

In conclusion, it is suggested to make the most verified choice of methods or standards resulting from explanation of the task on optimizing the project's scope to the following measures: profit, time, cost and quality[23]. Therefore, further studies are essential in scope project management filed and its impact on project success rate.

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