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Significance of Scope in Project Success

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Abstract

Many projects start with good ideas, huge investments and great efforts. However, most of them do not achieve much success. A major contribution to unsuccessful projects is the lack of understanding or defining project and product scope at the start of the project. A properly defined and managed scope leads to delivering a quality product, in agreed cost and within specified schedules to the stake-holders. Whilst there is a clear understanding of the need to achieve project success, surprisingly little is published on significance of scope on project success. This study discusses that scope should be properly defined and controlled and what can be the major factors behind mismanagement of scope and how it can be overcome. It is concluded that a better appreciation of the distinction between project and product scope can bring a higher possibility of project success.

Keywords: Project scope; Product scope; Project Success; Scope Issues.

1. Introduction

The Project Management Institute [1] defines project as a temporary, definitive beginning and definitive end, endeavor undertaken to create a unique product or service. Projects can be considered as an achievement

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of a specific objective and involves the utilization of resources on a series of activities or tasks. One of the major sub processes of the pre project planning process is the development of the scope definition package. Scope definition is the process by which projects are defined and prepared for execution. It is at this crucial stage where risks associated with the project are analyzed and the specific project execution approach is defined.

The key question in this regard is, "What does it take to be successful in the business?" The three main steps in the process are:

- Identification of the factors involved in starting a project.
- Clearly defining the objectives.
- Identifying measures of performance.

This paper aims to focus on the pivotal factor of scope which influences the project's objectives and consequently affects the critical success factors of a project. A formal documentation of scope is essential to keeping a project on track. A secondary research is used in this paper. In this regard, past relevant researches have been reviewed generally dealing with project success and scope in particular. The purpose of the research is to explore the proposition that a recognition of the scope in the success of projects. The research depicts relationship between project and product successes.

2. Literature Review

2.1. Project Scope versus Product Scope

The product is a separate system within the project or program system. Both project and product scope has different needs, goals, objectives, stakeholders, drivers, and interfaces. While the product will be driven by the project scope, there will be other drivers as well. A project scope deals with the required work to create the project deliverables. The scope of the project is specific to the work required to complete the project objectives. A product scope, on the other hand, is the attributes and characteristics of the deliverables in the project creation. The product scope is measured against requirements, while the project scope is measured against the project plan.

2.2. Scope of Product

The scope of the product identifies the boundaries of the solution. The decision on the product scope is concerned with determining which of the business requirements (bearing in mind the constraints) could be carried out the by solution.

2.2.1. Capturing Scope

Without an agreed upon and documented vision, there is little hope of achieving success. It is essential for each project to clearly define and document its scope so that the project can move forward in a coordinated manner and requirements can be written. Miia Martinsuo & Pa¨ivi Lehtonen [27] carried out an empirical study on a questionnaire survey throughout major projects in Finland. Through linear regression of their results, they deduced that single project management is associated with portfolio management efficiency indirectly in form of goal setting (including scope of project). The reaching of scope goals could be considered the most important item for portfolio management efficiency since scope as the product is the practical way to implement strategy.

That can be done by following steps:

Identify Requirement

Once derived, the statement of need should not change over time. If the need is changing, we do not know what is really needed and we cannot build a product to meet a moving target. Don't let the real need be forgotten. It is the focus of our investment. The Chaos Report [35] based their results on surveys & several interviews to provide qualitative context. Some of their investigated case studies were of California (DMV) project 1993 & American Airline project CONFIRM in 1994. It was observed that incomplete requirements, changing requirements, and unclear objectives were amongst the chief reasons behind project failures. Whereas, projects of almost same magnitude HYATT Hotels, Reservation systems project 1994 & Barco Itamarati Brazilian Bank met successes due to well documented specific objectives & proper scope management.

Identify Stakeholder

Stakeholders should be accounted for and considered prior to writing requirements. Customers and users are some of the most important of the product's stakeholders. Knowing the needs of customers and users is critical to the success of the project. It is vitally important to project's success that key stakeholders are identified during the development of the project scope and are involved in the project scope definition. Robert W. Poole, Jr. & Peter Samuel [30] carried out through analysis of Boston's Big Dig Mega project along with other transportation projects. They observed that the major source of cost increases in mega-projects is project creep, adding unanticipated elements and unforeseen complexity.

Identify Project Drivers

Projects are driven by many outside influences, e.g. regulations, standards, laws, and other considerations. A major driver for many organizations is the set of existing equipment, software, or processes. Other drivers include security and safety concerns. Early attention to drivers is important to any project. Each driver needs to be identified, assigned for tracking, and included in the analysis of what the project is and is not.

Examining the Scope Statement

The scope statement provides justification for the project existence, lists the high-level deliverables, and quantifies the project objectives. Chung-Suk Cho1 and G. Edward Gibson Jr [31] mentioned about the Construction Industry Institute (CII) funding several research projects focused on pre- project planning of 53 capital facility projects into different intensities of pre-project planning effort and compared total potential cost and schedule performance. Because of the significant savings associated with improved project predictability, the study concluded that a complete scope definition prior to project execution is imperative to project success.

2.3. Project Success Factors

Kaufmann, Daniel & Kraay, Aart & Mastruzzi, Massimo [32] used the earned value method in quantifying scope change magnitude for cost adjustments. Based on surveys, Chan and Kumaraswamy [33] mentioned impractical design, labor shortages, poor performance, unforeseen conditions, and poor communication. Shenhar [24] classified technological uncertainty into four levels, correlating them with overall project duration.

Levy and Globerson [34] implemented concepts from queuing theory for reducing the impact of waiting periods of critical work packages on the delivery times of projects executed in parallel. Scope and objectives are the guiding principles that direct the efforts of the project team. They determine a project's success or failure Ward [22]. Without a well-defined scope, the objectives of information system development can be

vague and people may start to lose sight of what they are trying to develop Clarke [19]. Breaking large projects down into sub-projects or work packages is regarded as one of the most important tasks in new or development projects.

Fig. 1. above shows the combination of project and product scope having impact on project success.

3. Analysis and Discussion

Most of the researchers considered cost, time, quality and stakeholders' satisfaction as the main factors which may affect project success. The eminent researchers considered that time were the most important factor. Cost was another success element of the rare project success criteria which were found to be a very important in overall project success. Success could be measured by determining was the project completed to specifications or whether the project demonstrated for the purpose only. Stakeholder's satisfaction is another pivotal factor in project success. Different researchers have given different meanings to project success. Summary of these researches is shown in Table 1. The tick sign in this table stand for the researches which considered impacts of scope plan on project success.

The recent researches have realized that most of the project do not achieve much success because of lack of a clear definition for project and product scope as well as improper control of them. Scope, as a measurable concept, has been considered as either a criterion or factor. In fact, a project scope with clearly defined goals and objectives has been verified as a dimension for project success by some researchers. Collins & Baccarini [7] considered a rigorous scope to be a factor which is necessary for meeting the owner's needs and thus achieving success. Shenhar, A.J & Dvir. [20] claimed that, projects exhibit considerable variation, and their specific management styles seem different. Ward [22] said that the scope of a project must be understood by all the participants, or stakeholders, who have to make decisions throughout the project. Agarwal & Rathod [5] state that both the customer (who requests software) and software development teams agree that delivering the required product is the most important goal. If this goal is not met, the project is a failure. Within Kerzner's [3] criteria for judging project success, includes considerations of time, budget, specification, customer satisfaction, and maintaining status quo within the organization. He emphasized that scope changes need to be curtailed or, failing that, controlled, for they have the potential to destroy not only the morale on a project, but the entire project.

Table 1. Major Project Success Factors.

References	Major Project Success Factors				
	Scope	Time	Cost	Quality	Stakeholders Satisfaction
[2]Thomas & Fernandez		○	○	○	○
[3] Kerzner		○	○	○	○
[4] Dvir et al.		○	○		○
[5] Agarwal & Rathod	√				
[6] Rose		○	○	○	
[7]Collins & Baccarini		○	○	○	○
[8] Hughes, Tippett & Thomas		○	○	○	
[9] Belout & Gauvreau		○	○	○	○
[10] Young	√	○	○	○	○
[11] Westerveld		○	○	○	○
[12] Dvir, Raz & Shenhar		○	○	○	
[13] Cooke-Davies	√	○	○	○	
[14] White & Fortune		○	○	○	
[15] Hartman & Ashrafi	√	○			
[16] Armstrong		○	○	○	○
[17] Lim & Mohamed		○	○	○	
[18] Linberg		○	○	○	
[19] Clarke	√				○
[20] Shenhar & Dvir	√				
[21] Munns & Bjeirmi		○	○	○	
[22] Ward	√	○	○	○	
[23] Paulk et al.		○	○	○	
[24] Shenhar	√				
[25] Slevin & Pinto		○	○	○	

3.1. Improve Project Success with Better Scope Management

The Project Management Institute [1] defines product scope as the features and functions that are to be included in a product or service. It defines project scope as the work that must be done to deliver a product with the specified features and functions. Tom Kenderick [28] based his analysis on (PERIL) database, which serves as the basis for the analysis of high-tech project risk. The two broad categories of scope risk in PERIL related to changes and defects. By far the most damage was due to poorly managed scope change. Of the most damaging 127 risks in the (PERIL) database, 64 just over half were scope risks.

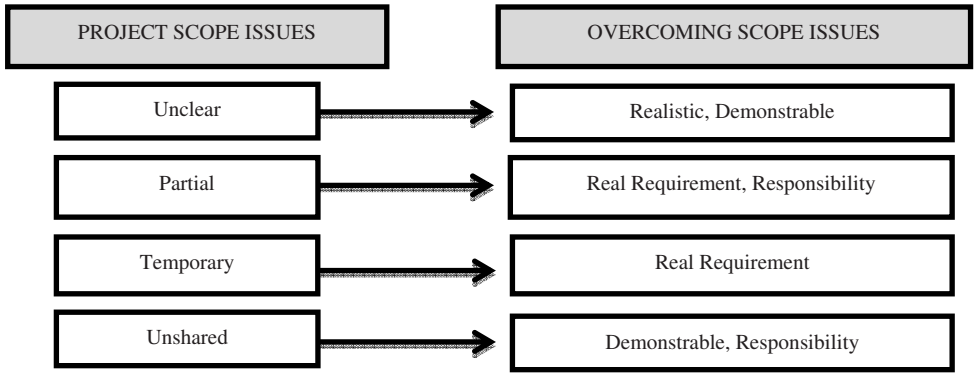

Fig. 2. above shows the issues with scope and how to overcome those.

3.2. Problems with Project Scope

Poor scope definition has been linked to project failure. Inadequate or poor scope definition negatively correlates to project performance, has long been recognized as a significant problem. If boundaries are not appointed, final project costs tend to be higher because of changes that interrupt project rhythm, cause rework, increase project time, and lower the productivity as well as the morale of the field work. Charlie C. Chen, Chuck C. H. Law, and Samuel C. Yang [26] subjectively carried out their research failures of ERP implementation in Taiwan based MNC. Since five different vendors were tried and tested over a period of two years. They deduced that scope management should be strictly exercised to control the extent of customization. The proper scope management helped to reduce gradually the number of user requests. The misalignment can lead to ERP implementation problems with respect to scope creep and ill-defined interface. It is best practice to involve stakeholders because of the real contribution they can make to the scope document, which helps to increase buy in and commitment, and cement relationships. Fichter [29] carried out research on the failure of Web Projects. She chalked out that a major reason for project failure is a dislike of planning. When planning in any of the project phases is shortchanged, the foundational work of the project does not exist. The problems that may arise with the project scope are: 1) unclear definition of scope, 2) incomplete or partial scope, 3) not finalizing scope documents and 4) not sharing scope statement.

3.3. How to Overcome Scope Issues

In addition, without firm scope definition, the project team may also find that external stakeholders such as suppliers will cause problems around conflicts over cost and quality/delivery of materials. A superior quality scope will also dictate boundaries within the scope of work which in turn will act as alerts in the event of added works: even a product description such as a blueprint can be a source for defining scope and setting limits on scope creep. In conclusion, the process of delineating the scope of a project at the pre-planning stage would include stakeholders and their needs or responsibilities. Following aspects should be kept in mind before finalizing scope: Specifying real requirements, being realistic in writing requirements, demonstrating requirements and being responsible against individual requirements.

4. Conclusions

This paper attempts to provide logic for the distinction between impact of project and product scope on

project success. To achieve a project's objective, many tasks are often accomplished as separate work packages or elements and then integrated into the final product. To deliver a quality product, on time and on budget that meets customer's expectations, getting back to the basics and define, communicate, and get agreement on a clear vision for the product is required. To establish this vision, spending the time at the beginning of the project accomplishing and getting agreement on critical activities before writing requirements and beginning product development is essential. These activities include clearly defining the project and product scope, goals, project drivers, constraints, assumptions, operational concepts, external interfaces, feasibility and risk assessments. This paper's research is at its embryonic stage and is limited in its coverage of other alternative performance measurements. Future research directions involve the extension of the breadth of the study and the inclusion of other domain perspectives to refine the assessment framework. The identification and explication of goals and measures for each dimension are also recommended. Possible research directions include two main paths; one dealing with project scope and the other with product scope. Its overall impact on the project success should be carried out at length. Realistic performance measurements and assessments are becoming increasingly important as organizations continue to face internal constraints and institutional pressures. Additionally the researchers should give due value and importance to scope as an additional perspective to help measure project performance more effectively and efficiently. Future research could attempt to relate scope attainment with customer satisfaction; and could scrutinize project documents in order to determine project objectives and investigate the relationship between perceived success criteria and project objectives.

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