The Impact of the Project Manager on Project Management Planning Processes

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Abstract

If a project is to be successfully completed, both planning and execution must be properly implemented. Poor planning will not allow appropriate execution and control processes or achievement of the project's targets. The objective of the study reported in this paper is to evaluate the impact of the project manager on the quality of project planning processes within the nine knowledge areas defined by *A Guide to the Project Management Body of Knowledge* (*PMBOK® Guide*) and to determine ways of increasing the effectiveness of the manager's intervention. Participants in the study evaluated their use of the 21 processes that relate to planning, out of the 39 processes required for proper project management. The results of the study reveal risk management and communications as the processes with the lowest planning quality. Poor quality in these areas results when project managers lack the formal tools and techniques for dealing with communications and the functional managers are not equipped with the tools and techniques that will allow them to effectively contribute to the risk management process. Improving quality planning processes requires the development of new tools in areas such as communications, as well as organizational training programs designed for the functional managers.

Keywords: project manager; functional manager; planning; impact

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Project success is measured as the ability to complete the project according to desired specifications and within the specified budget and the promised time schedule, while keeping the customer and stakeholders happy.

For proper project completion, both planning and execution must be properly implemented. Control is the monitoring mechanism that ensures each of the two phases is properly implemented, with corrective actions being introduced where there are undesired discrepancies between the project's plan and its execution.

Much has been written about control (Cleland, 1994; Fleming & Koppelman, 1994; Kimmons, 1990; Shtub, Bard, & Globerson, 1994; Wysocki, Beck, & Crane,1995; Zwikael, Globerson, & Raz, 2000). However, most of this literature relates to the use of control during the execution phase, the plan being used as the baseline for evaluating progress during the execution phase.

The main reason for the scarcity of literature on planning control is the difficulty in defining a baseline for monitoring progress during the planning phase. One may say that stakeholders' requirements should be used as the baseline for evaluating planning. However, requirements are expressed in terms of functional needs, whereas planning is expressed by technical parameters. As these two areas use different "units of measurement," they are difficult to compare. Despite the evaluation and control difficulties, it is of the utmost importance to verify that planning is properly done and to develop tools that will improve its quality. Poor planning will result in poor execution.

The purpose of this paper is to evaluate the actual impact of the project manager on the quality of project planning processes and to determine how intervention can be made more effective. The methodology used in this study is based on *A Guide to the Project Management Body of Knowledge* (*PMBOK® Guide*) (PMI Standards Committee, 2000). According to the *PMBOK® Guide*, a project manager is concerned with nine different knowledge areas, in which he or she has to properly manage 39 different processes. The processes are grouped into four life-cycle phases: initiation, planning, execution, and closure. Because this study concentrates on planning, Table 1 identifies the processes that support just the planning phase.

Out of the 39 processes listed, 21 are identified by the *PMBOK® Guide* as related to planning. If a project is to be properly planned, these 21 processes must be properly executed. To evaluate the quality of planning process implementation, the products of each single process must be evaluated. Although each process may have multiple sets of outputs and each set may have multiple products, one major product can

Knowledge area	Planning processes	Other processes
Integration	Project plan development	Project plan execution Integrated change control
Scope	Scope planning Scope definition	Initiation Scope verification Scope change control
Time	Activity definition Activity sequencing Activity duration estimating Schedule development	Schedule control
Cost	Resource planning Cost estimating Cost budgeting	Cost control
Quality	Quality planning	Quality assurance Quality control
Human resources	Organizational planning Staff acquisition	Team development
Communications	Communications planning	Information distribution Performance reporting Administrative closure
Risk	Risk management planning Risk identification Qualitative risk analysis Quantitative risk analysis Risk response planning	Risk monitoring and control
Procurement	Procurement planning Solicitation planning	Solicitation Source selection Contract administration Contract closeout

Table 1. Separating the 39 Processes Belonging to the Nine Knowledge Areas by Planning Processes and Other Processes

be identified for each planning process. For example, the major product of the scope definition process is the work breakdown structure (WBS). Table 2 lists the major products for all planning processes.

The Study

A field study was conducted to evaluate the extent of the project manager's involvement in the planning processes and to evaluate their quality. A major problem in designing this study was to establish a way to evaluate the extent to which planning processes were used in projects and their quality level. For this purpose, the following assumption was made: The quality of a process is a function of the frequency with which it is used to obtain the major product of the process. This assumption is based on the learning curve theory, which has proved ongoing improvement as a function of the number of repetitions (Griffith, 1996; Snead & Harrell, 1994; Yiming & Hao, 2000; Watson & Behnke, 1991).

Participants in the study were project managers and others who are involved in project management activities. The 282 participants came from different project management workshops administered as part of internal or external training seminars. The portion of the questionnaire that they were asked to complete, which served as the database for this study, appears in Appendix 1.

The following scale was used for evaluating the intensity of use of the different products:

- 5 = The product is always obtained;

Knowledge area	Planning processes	Major product
Integration	Project plan development	Project plan
Scope	Scope planning Scope definition	Project deliverables Work breakdown structure
Time	Activity definition Activity sequencing Activity duration estimating Schedule development	Project activities PERT or Gantt chart Activity duration estimates Activity start and end dates
Cost	Resource planning Cost estimating Cost budgeting	Activity required resources Resource cost Time-phased budget
Quality	Quality planning	Quality management plan
Human resources	Organizational planning Staff acquisition	Role and responsibility assignments Project staff assignments
Communications	Communications planning	Communications management plan
Risk	Risk management planning Risk identification Qualitative risk analysis Quantitative risk analysis Risk response planning	Risk management plan Risk list Project overall risk ranking Prioritized list of quantified risks Risk response plan
Procurement	Procurement planning Solicitation planning	Procurement management plan Procurement documents

Table 2. Major Product of Each Planning Process

- 4 = The product is obtained quite frequently;
- 3 = The product is obtained frequently;
- 2 = The product is seldom obtained;
- 1 = The product is hardly ever obtained;
- 9 = The product is irrelevant to the projects I am involved in;
- 0 = I do not know whether the product is being obtained.

Table 3 summarizes the results. As may be seen from Table 3, the quality of the processes ranges from a low of 2.0 for qualitative risk analysis up to 4.2 for activity duration estimating. In other words, qualitative risk analysis is hardly practiced. There is a high correlation among the quality of products belonging to the same knowledge area; that is, they are either low or high. For example, the quality of all risk processes is below 2.9, whereas the quality of all the scope processes is above 3.5. The quality of each knowledge area is calculated by the average quality of the processes belonging to it, as presented in Table 3, and charted in descending order in Figure 1.

The three groups of knowledge areas identified in Figure 1 are:

- High quality areas, to which integration, scope, time, and human resources belong. The score for this group is around 4;
- Medium quality areas, to which cost, quality, and procurement belong. The score for this group is around 3;
- Poor quality areas, to which risk and communications belong. The score of both is around 2.3.

Analysis and Discussion

Assuming that for successful completion of a project, all processes in the nine knowledge areas should be high quality, we should discuss ways to improve the poor performance areas. Performance in a specific area is a function of the project manager's know-how of that area, the know-how of other professionals, such as functional managers, who are involved in the specific process, and with the project manager's ability to affect the area and its attendant processes.

In general, functional managers are accountable for the proper execution of the specific work packages assigned to them, whereas the project manager is responsible for integration and infrastructure-related work packages and activities. For example, a project manager is heavily involved with the process of establishing the WBS for the whole project and is directly

Knowledge area	Processes		Major product	
	Name	Quality	Average	STD
Integration	Project plan development	4.0	4.0	1.1
Scope	Scope planning Scope definition	4.1 3.6	3.8	0.9
Time	Activity definition Activity sequencing Activity duration estimating Schedule development	4.1 3.4 4.2 4.0	3.9	0.7
Cost	Resource planning Cost estimating Cost budgeting	3.7 3.0 3.2	3.3	1.0
Quality	Quality planning	2.9	2.9	1.2
Human resources	Organizational planning Staff acquisition	3.8 3.6	3.7	0.9
Communications	Communications planning	2.3	2.3	1.1
Risk	Risk management planning Risk identification Qualitative risk analysis Quantitative risk analysis Risk response planning	2.2 2.8 2.0 2.3 2.3	2.3	1.2
Procurement	Procurement planning Solicitation planning	3.3 3.3	3.3	1.2

Table 3. Quality of Major Planning Processes Within the Different *PMBOK® Guide* Knowledge Areas

accountable for it. However, a process such as quantitative risk analysis, which must be done separately for each individual work package, requires heavy involvement of the functional manager and those of his employees who are responsible for executing the work package (assuming a matrix organization). Therefore, to perform the process properly, all the involved parties should possess know-how of risk management methods.

Process know-how means being familiar with the required inputs, the tools and techniques used, and the desired outputs of the process. If this is not the case, then risk management or any other relevant processes can't be effectively handled on a work package level or on the integrated level. A project manager functioning in a matrix environment gets work packages done by "contracting out" to internal suppliers, who are the functional managers in the organization, and purchasing other work packages from external sources via procurement processes. Because procurement requires the signing of formal documents, as compared to working with functional managers within the same organization, much care is taken to include all relevant expectations in the contract, to ensure that the external suppliers follows all requirements. The combination of employees working on a work package without the relevant know-how in relevant risk management processes, and a project manager without the ability to endow them with this knowledge makes it unrealistic to expect effective implementation of project management processes. In other words, if a certain process is to be carried out in an appropriate manner, the people involved in the process need the relevant know-how.

Table 4 divides the planning processes according to the individual who expends most effort in properly executing a process (the project manager or the functional manager), keeping in mind that the project manager is held responsible for all processes. In general, in a matrix organization, a functional manager is responsible for carrying single work package related activities, whereas a project manager deals with work packages that are integrated in nature. For example, a functional

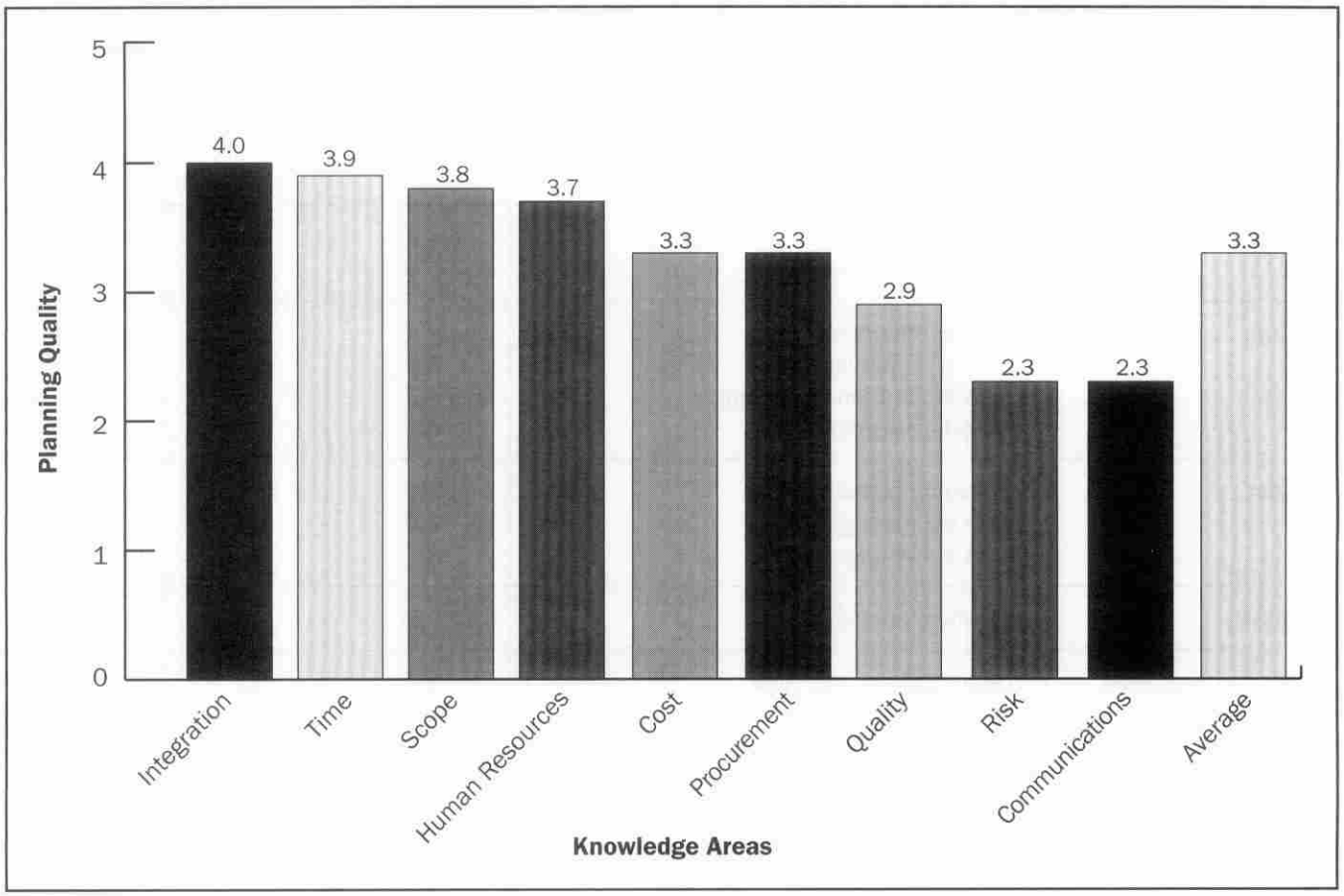

Figure 1. Planning Quality of the Nine *PMBOK® Guide* Knowledge Areas

manager carries the major responsibility for activity definition, whereas the project manager has to integrate all project activities into activity sequencing, and so on.

Keep in mind that a project manager is regarded as a functional manager when he or she works on the professional work packages that fall within his or her direct area of accountability. For example, the project manager is directly accountable for the scope-definition process, the major output of which is the WBS. However, the project manager will not be able to execute this process out without the cooperation and the know-how of functional managers. The same holds true for all processes, regardless of the manager who is directly accountable.

Further, the two areas that belong to the "poor quality" group, that is, risk management and communications, displayed poor results. Because risk management is part of the *PMBOK® Guide* and, therefore, also part of the Project Management Professional (PMP®) examination, one may assume that project managers are familiar with it. However, functional managers do not have any formal risk management training, and one may assume that they suffer from lack of the requisite know-how with regard to risk management processes. It is therefore not surprising that functional managers are of little help in performing risk management processes. The project manager is thus left alone to struggle with it, with limited success according to the results of this study and others (Ibbs & Kwak, 2000; Mullaly, 1997).

The situation is not the same for the communications area, because its only planning process—communications planning—is an integrated work package with which the project manager is the most heavily involved. Although other professionals, such as functional mangers, must be involved in the communications planning process, the project manager should lead the overall effort and have a strong command of the relevant tools and techniques. Therefore, lack of know-how on the part of the functional manager is not the main reason for poor performance in this area. The explanation has to be sought elsewhere.

According to the *PMBOK® Guide*, "Communications planning determines the information and communications needs for the stakeholders: Who needs what information, when they will need it, and how it will be given to them" (p.119). This area is probably the most difficult for the project manager to plan, because it requires getting present and future information needs from all the stakeholders. Very few formal tools and techniques are available to the project manager for supporting the communications area. *PMBOK® Guide* offers only one unstructured tool, namely, stakeholder analysis. The lack of proper and easily accessible tools coupled with the difficult task of identifying future information needs of stakeholders makes communication a very difficult process to plan.

Knowledge area quality	Knowledge area	Project manager	Functional manager
High	Integration	Project plan development	
	Scope	Scope planning Scope definition	
	Time	Activity sequencing Schedule development	Activity definition Activity duration estimation
	Human resources	Organizational planning	Staff acquisition
Medium	Cost	Cost budgeting	Resource planning Cost estimating
	Procurement		Procurement planning Solicitation planning
	Quality	Quality planning	
Poor	Communications	Communications planning	
	Risk	Risk management planning	Risk identification Qualitative analysis Quantitative analysis Risk response planning

Table 4. Mapping of the 21 *PMBOK® Guide* Planning Processes According to the Individual (Project or Functional Manager) Who Performs Most of the Activities Required to Execute the Planning Process

The areas that belong to the middle quality group are cost, quality, and procurement. From Table 4, we can identify the manager who needs most of the know-how required to properly execute each of the processes. While the project manager leads the process in the quality area and the functional manager in the procurement area, both are involved in the cost area. Therefore, the key to success in these areas is different tailor-made training modules for the project and the functional manager.

Conclusion

As the person who is fully accountable for the success of the project as a whole, the project manager is responsible for overcoming the difficulties encountered in guaranteeing that all planning processes are properly executed. To resolve the problems, the project manager should identify the events that have a negative impact on the successful completion of the project and develop explicit mitigating plans to accommodate them.

In some areas, such as communications and quality, the project management community should develop better tools and techniques to support the project manager's efforts. In other areas, such as risk and cost, more emphasis should be placed on the training of functional managers in the use of the relevant tools and techniques. In other words, the functional manager also should get intensive but adapted project management training. The agent for such a fundamental change in the organizational culture can't be the project manager alone. It is essential that it be sponsored at a high level of the organization and even treated as a project by itself.

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Appendix 1. Project Planning Assessment Questionnaire

For each planning product listed, please mark the most suitable answer regarding the projects you are involved in, according to the following scale.

5 = The product is always obtained.
4 = The product is quite frequently obtained.
3 = The product is frequently obtained.
2 = The product is seldom obtained.
1 = The product is hardly ever obtained.
9 = The product is irrelevant to the projects I am involved in.
0 = I do not know whether the product is obtained.

Planning product	Never				Always	Irrelevant	Do not know
Project plan	1	2	3	4	5	9	0
Project deliverables	1	2	3	4	5	9	0
Work breakdown structure	1	2	3	4	5	9	0
Project activities	1	2	3	4	5	9	0
PERT or Gantt chart	1	2	3	4	5	9	0
Activity duration estimates	1	2	3	4	5	9	0
Activity start and end dates	1	2	3	4	5	9	0
Activity required resources	1	2	3	4	5	9	0
Resource cost	1	2	3	4	5	9	0
Time-phased budget	1	2	3	4	5	9	0
Quality management plan	1	2	3	4	5	9	0
Role and responsibility assignments	1	2	3	4	5	9	0
Project staff assignments	1	2	3	4	5	9	0
Communications management plan	1	2	3	4	5	9	0
Risk management plan	1	2	3	4	5	9	0
Risk list	1	2	3	4	5	9	0
Project overall risk ranking	1	2	3	4	5	9	0
Prioritized list of quantified risks	1	2	3	4	5	9	0
Risk response plan	1	2	3	4	5	9	0
Procurement management plan	1	2	3	4	5	9	0
Procurement documents	1	2	3	4	5	9	0