

# Information Technology And Project Management

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**Abstract:** Today, businesses are using IT technology and IT systems to improve the efficiency and effectiveness of project management and business processes, as well as for supporting decisions and group collaboration. Nowadays, the development of a business can not be imagined without application of computing, tools and its methods.

Projects are a special way of development and an important form for achieving the goals defined in the development plans of the company, locality or country. Projects provide rational utilization of rare funds and resources, contributes to revenue growth, economic sustainability, and better quality of life in general. Fulfilling these key objectives depends on what extent the planned project meets the parameters. A project, technically, is a temporary attempt to create a unique product or service to achieve a specific goal. Good projects need good plans. Planning is an important repeating process that communicates with the purpose of the project by defining which processes will be used, how they will be executed and controlled, and finally how to successfully complete the project within the time and budget planning.

*The purpose of this paper is to promote the importance of project management with the help of IT technology and adequate software, indicating that this process is very complicated, which requires detailed planning, strict organization and effective control process. Therefore, with the help of IT, in a best way we can manage and control project risk, increase profitability, increase the speed of information flow between managerial levels and reduce costs.*

**Keywords:** Project, IT, management, planning, processes, business etc

## 1. INTRODUCTION

Projects can be large or small and involve one person or thousands of people. They can be done in one day or take years to complete.

Managing projects often can seem like unmanageable work because it requires a lot of experience, knowledge and practical work. This task may seem difficult for us to be followed successfully and successfully completed. But in everyday life, in one way or another, everybody is, at all times, a project manager. Management summarizes the achievement of objectives, tracking the progress of the work during its various phases, and organizing it together with the division of tasks (S. Panariti, 2002)

Various forms of planning, organization and project management facilitate successful and efficient execution of important development orders and tasks within the enterprise. Project management means planning, tracking, monitoring, and running a complex task plan from start to finish. Through various forms of project organization and management can be achieved to efficiently realize important development tasks within the enterprise and beyond. Project management is a way of working with a goal-oriented approach. Through a teamwork and well-coordinated project management promises the fulfillment of project tasks and solving certain problems.

Successful management means ensuring the resources that will be used rationally, transparently and clarity starting from defining the tasks and to other final stages through the description and completion of all project documentation.

Project Management implies the coordinated and projected direction of the multiple project elements and activities that affect each other, not leaving the co-stars or genius of the project designers but by directing them in a planned, straightforward way desired result (S. Panariti, 2002).

## 2. LITERATURE REVIEW

While there are several definitions of projects in the literature, one of the best has been offered by (Tuman, 1983), who states: A project is an organization of people dedicated to a specific purpose or objective. Projects generally involve large, expensive, unique, or high risk undertakings which have to be completed by a certain date, for a certain amount of money, with some expected level of performance. At a minimum, all projects need to have well defined objectives and sufficient resources to carry out all the required tasks (Guru Prakash Prabhakar , 2008)

The project management summarizes the achievement of the objectives, the follow-up of the work performance during its various phases, and the organization along with the division of tasks (S.Panariti, 2002).

Various forms of project organization and planning facilitate the successful and efficient execution of important orders and important development tasks within the enterprise. Project management implies planning, running / overseeing and running a complex plan together with the institution that implements this task. Through various forms of project organization and management can be achieved to efficiently realize important development tasks within the enterprise and beyond.

When talking about projects, it should be understood that they help achieve the objectives defined by the program, the projects are part of the program and each one is independent, and together they aim to carry out joint tasks, put in a wider development program. Often the projects constitute a certain and significant part of a development program. Development programs consist of more concrete or sectorial projects. Thus, a multi-year development program of the economy may consist of a number of economic projects that follow one after the other, while the project is an activity, consisting of smaller operations, as a separate part of a national plan or development program economic. The goals of the program find the overall goal of the project. The goals of the program link project goals to those of other larger-scale projects reaching national levels.

Planned project approach means project planning through methods known everywhere in the theory and practice of project planning (P. Morris, 1994).

Before starting the planning process, it is necessary to consider the way in which the objectives should be presented to the project and according to which plans should be distributed. What we need to do first is to

identify the issue, search for the issue, writing a first draft of the material, editing and re-writing again, preparing the presentation, completing the final draft, completing the presentation and submitting the presentation of the assignment.

Knowledge projects are more likely to succeed when they use the broader Infrastructure of both technology and organization. Of the two technological infrastructure is more accessible (Thomas H. Davenport, David W. De Long, Michael D. Bers, 1998).

The British Standard for project management (BS60794 1996) defined project management as: The planning, monitoring and control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance. While the author (Wright 1997) suggests that only two parameters are importance for success project, the time and budget.

Many other author (Turner 1993) , (Wateridge 1998) , (Pinto and Slevin, 1988) all agree cost, time and quality should be used as success criteria, but not exclusively.

Project management tools and techniques assist project managers and their teams in carrying out work in all ten knowledge areas. For example, some popular time-management tools and techniques include Gantt charts, project network diagrams, and critical path analysis.

Monitoring and evaluation of the project is a process of permanent comparisons of the planned and realized effects. Monitoring and Evaluation are an integral part of management in the role of control function (Jack R. Meredith and Samuel J. Mantel, JR, 1995).

### 3. INFORMATION TECHNOLOGY AND PROJECT MANAGEMENT

Project management is “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements.” Project managers must not only strive to meet specific scope, time, cost, and quality requirements of projects, they must also facilitate the entire process to meet the needs and expectations of the people involved in or affected by project activities.

Often implementing a project, we feel that time is not enough, we have very little human resources, people are not sure what to do, when a lot to do are. What causes this feeling and sometimes even pressure to weary? In its general sense, this causes a lack of planning.

Many people still use basic productivity software such as Microsoft Word and Excel to perform many project management functions, including determining project scope, time, and cost, assigning resources, and preparing project documentation. People often use productivity software instead of specialized project management software because they already have it and know how to use it. However, there are hundreds of project management software tools that provide specific functionality for managing projects.

What helps a project become predictable planned:

- a) Clear intention;
- b) Clear objectives;
- c) A clear plan;
- d) Clear control mechanism;
- e) Strong reporting structure;
- f) Clear budget planning or, in other words, good project management.

From these above-mentioned features if we were to address people who have great experience in project management and ask what makes a successful project they would simply answer “planning, planning, and more planning.” IT technology is a very good tool to support managers in the project management phases. Information Communication Technology represents a general term that includes all technical means for processing information and communication. ICT defines a wide range of technologies, including communication methods (communication protocols, broadcasting techniques, communication devices, media), as well as techniques for memorizing and processing information. The term technology derived from Greek is related to the production or processing that originally meant the knowledge or the science of a technique (Spinner, P.M., 1997).

The purpose of the IT systems is through these knowledge through these techniques to provide the right information, the right people, in the right time, in the right amount and in the right format. Creating knowledge means combining data for a particular purpose. However, knowledge can again be combined with other information to “generate” further knowledge, perhaps in a completely different context (Meredith, J. R. 1995). With the help of knowledge using the technology of time we manage to manage and plan susceptible. Project Approach means project planning through methods known throughout the theory and practice of project planning (P.Morris, 1994). Projects as a whole of activities have a special importance for the enterprise, are complex and specific, use resources to accomplish

certain objectives and have a starting point and ending of activities (S. Panariti, 2002). Projects represent a development opportunity, but at the same time unprofitable projects cause unnecessary costs and endanger the scrapping of both enterprise and national resources. While monitoring and evaluation of the project represents a process of permanent comparison of the planned and implemented effects. Monitoring and evaluation are an integral part of management in the role of control function (Jack R. Meredith and Samuel J. Mantel, JR, 1995). Thus, the projects are complex and produce risks, involve many collaborators and partners from both the enterprise and abroad, the geographical reach and its beneficiaries. So according to (Joseph Phillips, 2010) Project Management Information Technology influences from start to finish by doing:

- Reduction of expenses;
- Revenue growth;
- Providing technological assets to the organization;
- Improving customer satisfaction;
- Improving employee satisfaction;
- Increase of competing skills in the market;
- Increasing labor productivity;
- Increasing efficiency and efficiency.

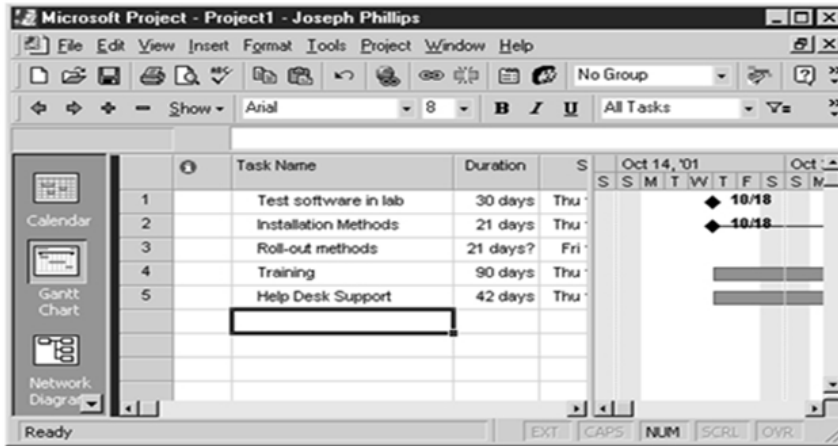
The purpose of technology is therefore to understand that the project has created the rule on how to achieve the desired situation in the future, stakeholders will understand the time needed and the costs required for the project for later planning because in daily practice costs projects can grow fast and get out of control. Therefore, these key competencies of IT systems (Kerzner, H. 1998) are as they are: Fast and fast data execution,

fast and accurate numerical calculations, fast communication and collaboration across organizations and organizations, storage or storage of large amounts of information in a small space with easy access, fast and free access to large amounts of information around the world, easy interpretation of very large amounts of data, increasing the effectiveness and efficiency of people working in groups in a country or in some different countries, the automation of the automated business processes and also the manual tasks.

These skills that IT offers should be used by each organization to be competitive in the market, to reduce costs and to score results by increasing revenue.

And what companies need to do during project management is therefore the use of information technology, respectively a software such as Microsoft Project and others. MS Project allows you to record tasks or jobs and show them in more detail if project development see fig. 1. If you are using Microsoft Project software, or any other project management software, you may consider the full launch of a software project plan. Of course there is nothing wrong with creating a sketch of a software-managed project.

Fig. 1. MS Project as a tool to manage projects.



We need to have the IT system, MS Project is a tool that helps in project management, not a guaranteed choice of errors and guaranteed success. Of course, panicking starts very widely, we may have some initial planning and introduce the results by predicting the time, resources and expenditures before they occur in reality so in these cases management remains to define project deadlines by setting a priority to be implemented. So first of all we are determined for the project that we think is probably accomplished by predicting the time, resources and exact costs through IT because we always know when we start a project but it is much more important to know when the project is to be completed and how much will cost you. With the division of activities and the definition of the duration of the activities we will clearly define both the resources and the expenditures. With the help of the MS Project we will oversee the process of procuring everywhere in our project, seeing whether or not we are in budget line.

In the theory of project management tasks according to S.Panariti, 2002, we could first mention:

- Prepare the budget and the timetable;
- The selection of people who will serve in the project group;
- To choose and recognize clients for work;
- Provide all the necessary opportunities and everything that is required from the very beginning of the project;
- Determine the necessary details needed to advance the project.

In all of these cases, IT technology and application software provide support in solving many problems of different nature, especially problems with planning and project management. In this case, the goal is to name the problem to cover the project activities so that it can be managed as smoothly and effectively by putting action on Software such as MS Project, where we will set the starting date, the duration of the project activity, resources or human resources the cost of

conducting the activity, critical activities and flow of activities.

### 3.1. Project Management Information Systems (PMIS)

Project management information system is an automated system to quickly create, manage, and streamline the project management processes. In the develop portion of the project, the PMIS can be used to help the project management team create the schedule, estimates, and risk assessments, and to gather feedback from stakeholders.

The PMIS is a tool that can help the project team to plan, schedule, monitor and report on a project. A PMIS is typically a computer-driven system (though it can be paper-based) to aid a project manager in the development of the project. A PMIS is a tool for, not a replacement of, the project manager.

A PMIS can calculate schedules, costs, expectations, and likely results.

The PMIS cannot, however, replace the expert judgment of the project manager and the project team. The goal of a PMIS is to automate, organize, and provide control of the project management processes.

A typical PMIS software system has:

- WBS creation tools
- Calendaring features
- Scheduling abilities
- Work authorization tools
- Earned Value Management (EVM)

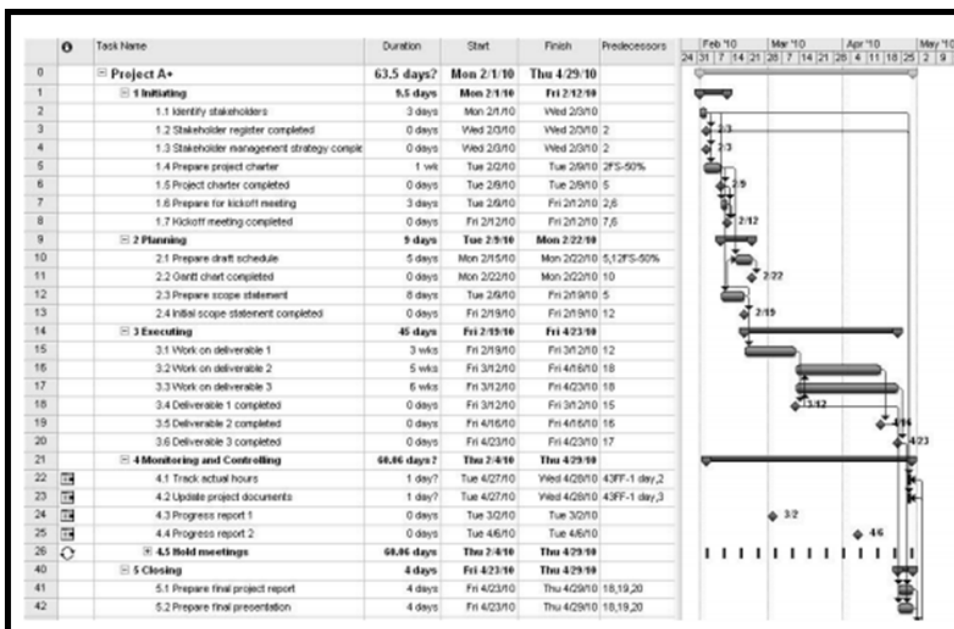
controls

- Quality control charts, PERT charts, Gantt charts, and other charting features

- Calculations for the critical path, Earned Value Management (EVM), target dates based on the project schedule, and more

- Resource tracking and leveling
- Reporting functionality

Fig. 2 Managing Activities with MS Project



Having a sketch or diagram of Gant, we will most easily follow all the activities that begin with the resulting, the resources that are needed, the responsible people, the activities that are over, the activities that have no time reserved therefore the critical activities the financial resources and the duration of each activity. In this way we will avoid mistakes and we will be able to complete the project within the anticipated time frame and within the planned budget.

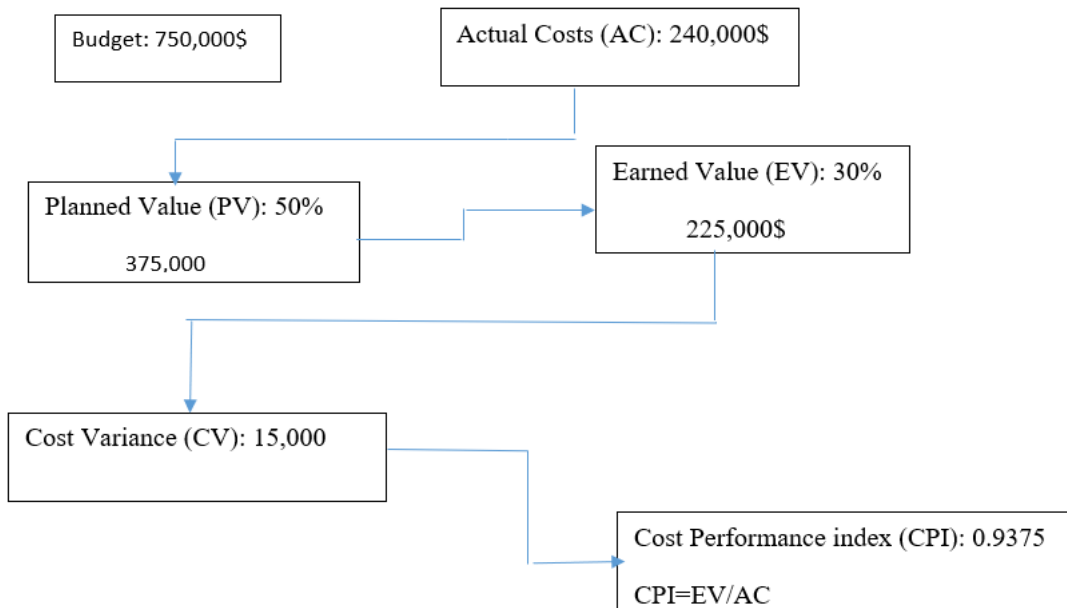
#### 4.THE COMPLETE PERFORMANCE AND SCHEDULE PERFORMANCE INDEX

If you want to see if your project is within the planned budget, then we can check it

through calculating the complete performance index (TCPI) using the formula according to (Joseph Phillips, 2010)  $TCPI = BAC-EV / EAC-AC$ .

TCPI is the formula to predict the possibility of a project to stay within the budget, below we give an example of the calculation:

1. Budget (BAC)= 750,000\$
2. Earned Value (EV) = 30%  
(30\*750,000/100)=225,000\$
3. Planned Value (PV): 50%  
(50\*750,000/100)= 375,000\$
4. Actual Costs (AC): =240,000





The complete performance index (TCPI) calculated:

$$TCPI = BAC - EV / EAC - AC$$

$$EAC = BAC / CPI$$

$$CPI = EV / AC$$

$$CPI = (225,000 / 240,000) = 0.9375$$

(Estimate at Completion)

$$EAC = (750,000 / 0.9375) = 800,000\$$$

$$TCPI = (750,000 - 225,000) / (800,000 - 240,000) \\ (525,000 / 560,000) = 0.9375$$

$$(Variance at Completion) VC = BAC - EAC = \\ (750,000 - 800,000) = -50,000\$$$

In these circumstances we are not in the budget line to complete this project we will need even \$ 50,000 which means we spent more than we have to -50,000 out of budget planning.

To complete these projects according to this dynamic of work, we will need \$ 800,000, not as planned \$ 750,000, seeing that we are not in the budget line, we will have to take into account these circumstances to review the activities and work by engaging resources and free materials where there is room to save the lost money so that at the end of the project we are in budget line. If we do not undertake these controlling activities perhaps the costs will increase continuously.

#### 4.1. SCHEDULE PERFORMANCE INDEX

The Planning Performance Index (SPI) is the formula to calculate the difference of actual work performed versus planned work. The planning performance index is an assessment of the efficiency of completed work over a certain amount of time. There is not much money, but rather a percentage of how close is the complete work with the foreseen work.

Schedule performance Index = Earned Value / Planned Value

$$SPI = EV / PV$$

If the formula result is 1, you are planning (in time).

If the score is less than 1, you are behind planning.

And of course if the result is greater than 1, you are ahead with planning.

For example, if the value gained is \$ 18,887 and the planned value is \$ 20,875, the planning performance index is 0.90, which is less than 1, so this project is not in planning so we're back in planning.

#### 5. CONCLUSION

Project Management implies the coordinated and projected direction of the multiple project elements and activities that affect each other, not leaving the co-stars or genius of the project designers but by directing them in a planned, straightforward way the desired result.

MS Project is an entertaining program with which almost all the companies involved in project implementation have to be competitive in the market, companies should have well-trained staff with knowledge in the field of information technology.

The purpose of using the MS Project software is to manage all project elements efficiently in order to be in the process of identifying as quickly as possible the problems that arise in project development, time, budget, and material and human resources, and take measures to improve them or prevent them. Also the application of different calculations like CPI (Cost Performance index), SPI (Schedule performance Index), TCPI (To complete performance index) and VC (Variance at Completion) enables us to complete the project within the planned budget

The use of information technology in business development today means to be competitive in the market and effective at work.

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