

PROJECT MANAGEMENT

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Abstract: The project implies a sum of activities which leads to the realization of a common goal that requires the important usage of resources (human, material, financial...) and which has a specific period of accomplishment.

The notion of "a project" implies three defining elements: duration, risk and efficiency. To have a complete view over the notion we must consider a three-dimensional image, respectively, from finance, from economics and from accounting.

Project management consists of planning, the organization and administration of jobs and resources for the completion of an objective so that the goal to be accomplished under certain time, resource and cost constraints.

From the definitions, principles, objectives, functions and procedure we understand that project management is a complex system comprising of heterogeneous elements held together by powerful but fluctuating interactions. The emerging qualities appear from the organizing of all activities and can influence these components. This is encountered in complex informatics system projects that can withstand multiple risks, whose difficult development must be carefully overseen.

Today, project management cannot mean only applying a general rule, which is applied as a golden rule, but it represents an anticipation to facilitate adaptation to an ever-changing environment. It evolved, being based on an elaborate conceptual reflection, combining the reality of the project and its environment. It also takes into consideration the human dimension, based on the experience gathered by the participants who participate to the accomplishment of the project.

The project assumes an amount of activities which lead to the achievement of a common purpose that needs an important consumption of all types (human, materials, finances, etc) and which has a certain time of realization.

The notion of project involves three defining elements: time, risk and efficiency. In order to have a complete view of the notion we must take into consideration a trimensional image of it involving accountancy, economy and finances.

Accountancy is the most restrictive and it reduces the notion of project to the the notion of fixed assets. From this point of view a project represents all the personal assets, the real assets, the acquired assets, the created assets, etc.

Economy extends the content of a project and according to this notion a project represents all the resources consumption that are made in the present to get into the future some economical effects. This will be staggered in time and in total amount will be superior to the initial cost of resources. If we refer to the project duration we will notice that the most important are the result of the effort and the efficiency of the action.

Finances involve all the resources costs in a period of time and as a consequence they assure the balance between resources and needs.

So we will have the following definition of a project : a project is an unique process which consists in a series of controlled and coordinated actions, with deadlines, which guarantees the realization of an objective according to the specified needs, including the time, cost and resources restrictions.

According to this definition a project consists in a series of planned and controlled activities developed in a well determined time period, which have as a purpose producing a change in good of the organisation situation.

The projects may be simple or complex, but some of them have constant common features. Every project has the following features: project's specification, project's plan, time horizon, project's budget, cost's plan, analysis of uncertain problems, possible risk evaluation.

Project management consists in planning, organizing and managing the tasks and resources. Its purpose is the achievement of the project's objective in the conditions of certain constraints regarding time, resources and costs. The purpose of the project management is to prevent or to predict as many problems as possible and to plan, organize and control the activities in order to the project to be finalized as well as possible, in spite of all possible risks. This process begins before the allocation of funds and must be continued until the activity ends. The purpose is that the final result be satisfactory for the project's sponsor or buyer, and to fit in the deadline. Also, the final result mustn't request more money or resources than the one that have been allocated from the beginning.

A major progress in the development of the project management methods took place in the second half of the XX century, activated by the anxiety of the beneficiaries (who wanted the projects ready as fast as possible in order for their investments became profitable as soon as possible). The competition between nations for the supremacy in the arm and defence systems influenced the spreading of the powerful, safe and inexpensive computers.

Project management is more efficient when it uses complex techniques and facilities, becoming, from this point of view, a specialized branch of management.

Planning and control must be applied in all activities and resources involved in the project. This is why the project manager must be capable of understanding how the participants at the project work, what are their specific working methods and also their problems and their weak points. This thing requests a high experience and in this point, the project manager has a strong relation with the general manager.

Because of this, it is important to understand that the practice of efficient management project means a lot more than using sophisticated computer programs.

It is included over here a complete list of progressive managerial planification, of decisions, of perceptiveness, of good organization, of efficient commercial and financial management, of meticulous attention regarding the documentation and a good understanding of the consacrated management and governing principles.

The major characteristic of a project is his novelty. There are no two identical projects and even a project that will be repeated in one way or another will be different in some of his commercial, administrative or physical aspects.

The economical organizations have two types of activities : current activities and the activities developed during the projects. Sometimes the two categories are hard to differentiate because:

- both categories of activities are accomplished by the company employees;
- all the activities of the organization are accomplished with minimum resources
- all the activities of the organization are accomplished in the conditions of their execution planning and control.

The two types of activity are differentiated by the temporal and unique character of the activities during the projects, while the current activities have a continuous character. The beginning and the end of a project are well determined. So, the project duration is finite although the projects develops during many years. The projects ends when his objectives are achieved or when it becomes obvious that this objectives can not be reached.

At the operational level the curent activities present a repetitiv, continuous character and this is why they can not be associated to the notion of project. Although this activities end at some point, their ending is not related to the achievement of a certain objective. The curent activities take course most of the time due to a new approach which continues to justify their existence. The product created through the project has a long character and continues to exist after finishing the project.

This thing it is not available for the project team which rarely continues to function after finishing the project.

The characteristics of a product are known under the name of the range of activity of the project. The unicity of the project claims the progresive defining of the characteristics, in as many steps of successive description.

The range of the project, which express the activities that are required to be realized during the project, doesn't need to change in relation to this progressive definition of product. The range of the project represent a different notion from the range of the product.

The projects are extremely variate. In some of them works only one person, in others are involved thousands of people. In a project can be involved a single department or many economical organizations.

Project management represents the aplication of knowledge, abilities, instruments and techniques to achieve the purpose of the project activities when the needs and the expectations of the phisycal and juridical persons involved in the project are being satisfied. The project management assumes - the assurance of a balance between the sometimes contradictory requirements reffering to:

- the range (what must be realized)
- the realization time (when must be realized)
- the realization cost (budget bordering)
- the quality of the project (how it must be realized)
- the identified needs and the unidentified needs (expectations)
- the tasks of the different parts interested

The pojects can be classified in this way:

- a) after their amplitude: organizational, local, national, regional, international
- b) after the objective and activities domain: industrials, comerciales, culturales, ecologicals, scientificques (research), re-educational, management

The project represents a process that assumes the existence of a proper structure, at least from the organizatoric point of view if not from the institutional one. It has a very well organized leading and execution stucture. It is lead by the project manager who is responsible for the achievement of the objectives; it has a pre-determined time period, and the success is evaluated at the end. The physical and juridical persons involved in a project are:

- the project manager
- the client (the physical or juridical person who will use the results of the project, meaning the products and services realized during the project)
- the organization which accomplishes the project
- the project sponsor (the one who offers the financial resources for the project)

- other parts: the owner, the secondary sponsor, the supplier, the dealer, the members of the project team, the governmental agencies, mass-media, citizens.

The lack of management studies has different effects for the course of the project, such as:

- communication difficulties (confusions between notions, the lack of a clear strategy in communication between the team members etc)
- project management difficulties: not knowing basic notions of the project management or confusing the concepts of project management with the one of strategic management of the institution
- managerial conflicts (of insubordination, of interests, of budget, of resources) and even illegalities in the event of non-observance the managerial principles in an institution where projects are developing and especially in the event of producing budgetary overlapping or confusions
- bad decisions, with severe consequences in the material plan of the resources and budget: the wrong approximation of the efficiency standards or the underevaluation of the budget.

In order to avoid the negative effects (conflicts and losses) it should be adopted a politic of creating a managerial culture of the employees through different forms of instruction.

The necessary knowledge for the accomplishment of the projects are the specific ones and common to many domains (general management knowledges and knowledges from the domains in which is applied the project management and also technical knowledges).

For a project manager are essential the general management knowledges, such as: finance knowledges, accountancy, management, marketing, knowledges of strategical, tactical and operational planning, knowledges of human resources management).

Also, a project manager must have abilities such as: ability to be a leader, communication ability, negotiation ability, ability of solving problems, ability of influencing the organization.

No matter what project type, what personality and project manager style we deal with and what is the adopted method, the following principles must be respected:

- the unicity of the objective
- the project manager
- the project structure
- the general view from the objective to the resources
- evaluation/reevaluation
- the control and evaluation

The manager activity :

- Planning - an anticipated thinking regarding the steps that must be completed for reaching the objectives, establishing the project activities and the necessary resources, the realization of the GANTT with the time schedule of the project activities; a plan of using the resources.
- Organising – taking into consideration the time schedule are being allocated the necessary resources; is established the organizational structure of the team project and are being assigned the tasks for each member of the team.
- Coordination – the project activities are prepared and put in action; the control of the resources and project activities.
- Control – The progress of the objective is estimated by controlling the characteristic elements: resources, activities, results and impact. Are being established the criterias and

indicators of performance and also the quality standards, deadlines and costs. It's being established an informational system between the team members and also between team members and the rest of the organization. The control is a permanent function during the entire project.

- Management – the people involved are directed through the analysis of the results. It's being established who has the authority to decide and what are the limits of authority in coordination of the activities and in allocation of resources.

The degree of complexity of a project is given by the number of the task assumed to be accomplished, by the number and intensity of constraints that appear during the projects and it depends of three factors: time, money, objectives (the project "triangle"). The project "triangle" is formed by the three principles of a project: performance, cost and time are independent. In some situations the client may be determined to give more weight to one of the three objectives.

According to the managerial theory, the objectives must be "SMART":

Specific objective- to define very clear what will be achieved

Measurable objectives – the project result must be measurable

Accepted objectives – by all team members

Realistic objectives – in order to be achieved

Time objectives – establishing a realistic time cell

The success of the project is possible only assuring the permanent balance of the project "triangle", establishing "SMART" objectives and a control and internal evaluation program, maintaining open the communication with the team members. The way of conceiving the european programs imposed a cycle of projects formed from six steps: Programming; Identification, Evaluation ex-ante, Approval of financing, Implementation, Evaluation ex-post.

All this elements are common to all projects, but their implementation depends of every project. All projects have four steps:

- a) Conceiving of the project
- b) Planning of the project
- c) Accomplishment of the project
- d) Ending of the project

a) Conceiving of the projects

This step is very important, his purpose being to define the characteristics of the project elements in order for the decisional for of the company, even the sponsor to take a decision regarding the project. If the decision is positive it starts the second stage, the one of detailed planning. If the decision is negative, the project ends before to involve the company in useless cost.

In the study which is realised the following factors must be visible:

- The ability of the company to accomplish the project in the requested time
- The final cost of the project
- The costs involved
- The budget asked for the project
- Specifications of the project, including quality aspects and safety requirings
- Identification of some major problems that can be resolved by the company
- Defining the major activities and estimation of the costs and resources
- Accepting other contractual conditions

In conclusion , in the conceive stage of a project are being defined all the projects parameters and the project must be accepted by the beneficiary.

b) Planning of the project

After the approval of the project it starts the second stage, the one of detailed planning of it. By planning will be established all the execution steps and the moment of their execution, the necessary resources and the moments when this must be available and also the budget. A good planning will need time and resources, but it will save the company from useless expenses. Checking may lead to the idea that the project is not feasible so it will not be put in practice to avoid major expenses.

Time planning of the activities consists in: describing the project activities, establishing the relation between activities, estimated time for each activity and the necessary resources.

The financial planning of the project (project budget) consists in: estimation of costs for each activity, estimation of the possible sources of income, resolving the reconciliations between costs and incomes. It also consists in making the diagram for the money flux and in avoiding the financial crisis that may appear.

c) Accomplishment of the project

In this stage the key activities for the project manager are the permanent control of the activities and costs, the periodical evaluation of the progress and the introduction of new actions when is required.

The control of the project realisation is extremely important. First of all is required a time control. This indicates if the deadlines for the activities are respected, if there are many priority tasks on the list and if are necessary additional resources for the critical areas.

The main effects of the breach of planning will lead in time at the increasing of costs or will reduce the performance of the project. The problems caused by the breach of time planning may be reduced by: control and evaluation, fast interventions, negotiation, freedom of action for project manager, support from the rest of the organization.

To reduce the risks of breach of planning the planning is doubled by alternative plans and it is required a good communication between the team members.

Human resources problems are often hard to resolve. Like the time problems, human resources problems may be solved with a flexible planning and with changes. The correct use of money and the budget bordering are major responsibilities of the project manager.

The budget must be controlled during the entire project.

d) Ending of the project

In this stage are analysed the useful information regarding the evaluation of the project. This information includes:

- the success of the method in use
- the performance of the team

A project is successful if it's ready in the planned time, with the allocated resources and at the pursued level of performance.

The projects are made from processes. A process represents a series of actions characterized by entries and exits, instruments and techniques used to obtain this exits. A process may be of the following type:

- processes of project management, based on organising, planning, coordinating and controlling the projects
- processes based on products, based on creating a certain product.

The two categories of processes coexist affecting one another. For instance, the project can not be understood without knowing the way the product will be produced.

In a project, the management processes group in the following five groups:

1. **initiation processes**, every project or a step of a project must start and coordinate after it
2. **planning processes**, it is necessary a working scheme
3. **execution processes**, which assume coordination of people and resources
4. **control processes**, which assure that the project objective will be achieved.
5. **ending processes**, which assume the accept of the stage/project result and the end of it

This groups of processes are connected through the results produced by each of them. The connections between the principal groups of processes (planning, execution, control) are cyclic because during the project appear many iterations of planning, execution and control.

It is also put into practice the progressive refinement of the processes, such as the so called "planning in waves".

Management processes of the project are not sequential, so the beginning of one doesn't mean the end of the anterior one because they superpose in time.

The degree of superposing of the processes and the intensity of the interdependences of the project's activities differ in each stage of the project.

The five groups of processes can be find in every stage. In a group the processes interact through their entries and exits. Related cu these connections a process may be described through:

- entries (documents or elements which may be documented)
- instruments and techniques (mechanisms applied to the entries in order to create the exits of the process)
- exits (documents or components which may be documented and which are results of the process).

1. The initiation processes prepare the organization for the beginning of the next stage of the project.

2. The basic planning projects are: planning the range of the project, defining the range of the project (factorization of the results in smaller parts), defining the activities (identification of the specific activities that must be done, so they become solid results), sequentialization of the activities (to identify and to document the dependences between activities), estimation of time, elaboration of the calendaristical plan, planning of resources (identification of different types of resources and the necessary quantities to realize the activities), estimation of the necessary resources costs, costs budgeting (allocation of the general cost for each activity), elaboration of the project plan (consolidation of all the results in one single document, which is the project plan).

3. Support planning processes, realized discontinuous, when are necessary, are the following: planning of quality (determination of the quality standards), organizational planning (organization of the project by identification, documentation and distribution of responsibilities), personnel recruiting, communication planning, identification of risk, quantification of risk, defining the answer of the reaction at risk, planning the material acquisitions, planning of the solicitations.

4. Execution processes are: execution of the plan, checking the range of the project, the assurance of quality (systematical evaluation of the project global performance), building the project's team, distribution of the information, selection of sources, administration of contracts.

5. Control processes assume the regular measure of project's performances to identify the variations from the plan. Adjustments may assume to take again the planning processes. Control also assumes taking measures for preventing the problems. The control processes are: global control of changes (coordination of changes during the entire project), range

project control, time control, costs control, quality control, reporting the performances (reporting the stage of the project, measuring the performances), reaction risk control.

6. Ending processes can be realized at the end of the contract or they can be of administrative nature.

From these definitions, principles, aims, functions and procedures results that the product management is a complex system, among the others, composed by heterogeneous elements, bounded through powerful, but fluctuant interactions. Emergent qualities appear from the organization of all the activities and can react upon the composing parts. This is the case of the projects of completed information systems, which stands multiple risks, whose difficult development must be estimated very carefully.

A complex system is a system which, in a certain moment, is irreducible, complicated, sophisticated, no matter the model, the number of components and the intensity between them. A project has two crucial causes of complexity. The first refers at time, the problem which is developed during the third chapter, the second cause being represented by the members of the project, which is, first of all, a human performance, being known that a model is never identic to the effective work.

Today, the project management doesn't represent just the practice of a general rule, which is utilised as a succesfully formula, but it represents an anticipation in order to facilitate the accommodation to a permanently changing environment. It developed based upon a conceptual elaborated reflection, integrating the project reality and his enviroment. Thie takes into consideration the human dimension, resting exactly on the experince acumulated by the members of the project.

The projection at micro and macroeconomic level of some informatical systems which will use the technique of data bases and who will contain a serie of mathematical models represents a superior form of organizing the infromations. This conception revolutes the entire informational system by transforming it from a pasiv instrument of ascertainment, registering and analisys of some economical phenomenas and passed processes into an active instrument of prevision, command and control.

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