

# PROJECT MANAGEMENT

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## 2 Abbreviations

PM Project Management

### **3 Abstract**

This document was written as a course document for Rushmore course '2155 Project Management'.

I have 5 years of experience in project management. I occupied different positions in project core teams in several international projects in software development. I will discuss in this paper what project management is, how you can successfully perform project management and reasons for failures, that you should avoid.

The text in red colour reflects my own experience and my own ideas. Text in black reflects information which relates directly to the course literature.

## 4 Project Management: What / Why / When?

First of all, I feel the need to clarify what project management is, why it was invented and which problems it cannot solve.

Project management (PM) is a certain kind of management with the focus on being responsible for only one project instead of several projects in parallel. Project management was invented as a method or process inside companies to respond to and fulfil customers' demands in time and within budget.

PM was invented in many companies as a consequence of lean production and increasing customers' complains about the quality and features of delivered products. Let's have a look at the situation when PM was invented.

Companies were organised in departments which were responsible for certain functions. Departments, departmental groups and group members executed several customers' requests in parallel.

In such an organisation the question is who is responsible for organising customers' requests? If you put this task to departmental leaders, then these people have a conflict. Assume department leader A runs one project and department leader B runs a second project. Both share their staff; that means department leaders A and B need people from both departments. This implies a logical problem. Each department leader focuses on solving problems inside his/her department in order to have a good reputation. In such a configuration department leaders are more in having few complains in their department than they are in bringing products to the customers. The focus is not on the customer.

Please realise that this process ran well for several years. Please don't forget that companies were able to deliver projects to their customers even without PM.

PM was invented when companies started to reduce their manpower. First, companies wanted to know exactly for which tasks and projects their people worked. They wanted to get rid of superfluous people. In order to do this the companies needed to establish a process that specified per month which project was under construction, how long the project would last and how many people were needed per project. Companies needed people who were not busy with other tasks (e.g. department leaders), who were able to make project plans (e.g. how many people are needed in which month) and who could concentrate on bringing a complete product to their customers.

Hopefully you realised that not every company needs project management. If you don't run several projects in parallel or if you don't intend to optimise your process and if your customers are content, then you don't need project management.

If you need to organise several projects in parallel and the projects share the same resources then you should run these projects using PM.

If you use project management then you have dedicated persons per project who are responsible for one particular project. These persons focus on specifying the needed staff, the customers' demands and the needed equipment. They create a project plan in which they define which project step should be done at which time. They request people from the department leaders. The project managers is responsible for requesting the correct person for the correct time frame. The department leader is responsible for assigning the correct person in the requested time frame.

The next important function of a project manager is to track the project's progress to check that it is on schedule. If this is not the case then the project manager has to inform all the people involved (e.g. staff, department leaders, stakeholders or customers) in order to make the delay visible and in order to reach an agreement on how to proceed. Project managers could re-plan the project with a new end-date or they could drop some of the customer's demands (of course with the customer's agreements). However, you see that making problems or delays visible and finding corrective actions are two of the most important functions of project managers.

I would like to stress one last point: project management is no tool for solving a company's faulty manpower policy. If a company fired too many people, and the company hopes to solve the manpower shortage by introducing project management, then the company will fail. Project management does not solve manpower shortages but it can be used to make the missing manpower visible.

## **5 The Roles**

If you intend to implement project management in your company then you should know that your organisation would change. You probably have a top-down hierarchy with a CEO, senior managers, department leaders, group leaders and staff before you change to project management. With the implementation of project management you would have a *matrix organisation*, which means that the departments are the places where the staff is located to do the daily work. Additionally you will have project managers who will request people from the departments for a certain period. These people will get orders and work definitions from the project and not from the department. As a consequence, these people belong to departments from the organisational point of view, but to the project from the work point of view. Please realise that the matrix organisation implies the problem that a person gets orders from the project manager but the department leader who pays the person will judge the work.

### **Project Manager**

Project managers are responsible for making a *project plan*, for setting up *project teams*, *supervising the progress* of the project, *communicating* progress and delays inside the project team and outside to customers and shareholders if necessary. They must also be able and *willing to change their plan* if a change is necessary. Project managers know that their plan will change during the lifetime of a project and the longer a project lasts or the bigger a project is, the higher is the chance that re-planning will take place. It should be an *attitude* of project managers that they don't stick to their plan if a change is unavoidable.

Project managers get staff from the department leaders.

They report problems and progress to the CEO or senior managers, the department leaders and to the customer of the particular project.

### **Project Core Team**

In small projects the project core team consists of only the project manager. In larger projects it is impossible for the project manager to do all planning and monitoring activities.

Many activities take place before a project can really start. One of them is to create the project plan. This requires that several discussions about manpower allocation take place before the plan is settled. It also requires detailed discussion with the customers about the requirements. Another topic is to specify the time frame in which the project will be realised. Sometimes it is necessary to convince the CEO or shareholders of the profitability of a project.

The main people who help to set up a project, and who help the project manager to realise the project, belong to the project core team.

### **Project Team Members**

The project team members are the people who realise the project. They belong to departments which assign a part of their members to specific projects. People do not need to be allocated for 100% of their time for a specific project and not for the complete project time.

The important thing is that with PM the project team members work in a virtual group – the project team. The project team is not a department. This can result in a situation where members of one functional group (department) work in different projects. This is an unusual situation for the project team members because people are used to working in a close relationship with their colleagues. They are used to sharing their experience and are used to discussing problems. If people out of one functional group don't work together anymore but separate from each other in several projects, then these people lose access to this pool of shared knowledge. They can not discuss technical problems but have to solve them alone.

Successful project management implies that the project core team knows this unusual situation. They need to perform a good team building process. I will discuss this issue later.

It is important that you keep in mind that project team members are in an unusual situation because they work only part of their time in virtual groups. These project teams only exist as long as the project lasts. Sometimes, people join a project team only for a short time. In this case it is difficult for them to establish a personal relationship with the other team members as well as a relationship with the project.

### **Department Leaders**

Department leaders get requests from project leaders to specify people who could contribute to a certain project. It is a prerequisite that project managers already have a rough project plan ready which specifies at what time which kind of know-how and experience is needed.

Project managers should inform department leaders about the project's progress and any project delay. The latter is very important because a project delay affects the department leader. If a person has to support one project longer than it was originally planned then the department leader can not assign this person to another project. For this reason a strong communication between project managers and department leaders is mandatory for a successful PM.

### **Customer**

I said that the focus on the customer is one of the main objectives of project management. In PM this is done via the project manager. First, the *project manager* has a complete overview of all customers' requirements. S/he does not focus on parts, which departments can realise, but s/he *focuses on the overall requirements*. Project managers ensure that *all departments* necessary for the implementation will be included in the realisation of the project.

Additionally, the project manager should have *direct contact with the customers*. The direct contact is useful to *clarify* implementation details which might become unclear during the implementation of the requirements. The contact can also be used to discuss *prioritisation of customers' requirements*. If the project is in danger of not being ready in time, then the project manager could discuss with the customer whether the whole project should be delayed or whether the customer would prefer to have a pre-delivery with some features and a later delivery fulfilling the customer's complete requirements.

Another important advantage is that project management gives the customer *one* personal contact person – the project manager – with whom the customer can discuss everything project related.



In my company the customers have a complete overview of the project's status throughout the whole project. This is done via the project manager. The project manager monitors all project-related activities and verifies that the status of these activities correlates with the project plan. The project plan and the status of activities are transparently visible to our senior managers *and the customers*. This increased the *customers'* *faith* in our products and it *strengthened the relationship* between our customers and us.

## 6 The Planning Process

The project plan is the central element of project management. It contains the following information:

- The different phases of the project (e.g. project initialisation, top-level design, detailed design, test, verification, customers' verification tests, and hand-over)
- The interdependency of all phases with each other. That means which phase can start only after another phase has been finished.
- The number of people needed per phase.
- The required skill per person and per phase.

### 6.1 The Project Plan

From the practical point of view, the difficult thing is to reach a first stable project plan. Project managers have a clear view of when the phases should start. This depends mainly on the customers' demands concerning the delivery date and the effort to be spent on this project.

Project managers can use three ways to set up a project plan.

1. They could divide the effort by the number of persons they get from the departments. The result will be the needed time for the projects. They subtract this time from the delivery date and receive the start-time of the projects. If the start-time of the projects are in the future they have no troubles and the first project plans are ready.
2. If the start-time is already in the past then they have either too few people or the delivery date will be too late. A first attempt will be that project managers contact their customers and ask if a later delivery date can be accepted. If customers accept this then project managers can finalise the first project plans.
3. If customers don't accept a later delivery then the project managers have a staffing problem. The department leaders offered too few people to complete the project in time. A difficult time starts now. An *iterative process* starts in which the department leaders will scrutinise at which time which person might work for the project. The investigations will result in several proposals. The department leaders will figure out which other tasks will be harmed if they allocate the needed manpower. Finally, priority decisions will have to be taken by the company to decide which task or

project has the priority and will be finalised first. If a company decides that all other projects or tasks have higher priority and the customers still don't accept a later delivery then the project can not be started. The deal can not be closed.

To sum up, the three possibilities are first, *define the start-time* by subtracting the needed time from the delivery date. Second, *define the delivery date* by adding the needed time to the earliest start date. Third, *define the needed manpower* by subtracting the start-time from the delivery date.

The process to finalise the first project plan is an *iterative process* of asking for manpower, of offering some manpower and checking whether this would lead to an acceptable delivery date. This process could take a long time but it is essential to do this task before you commit a project to a customer because you need to avoid making a commitment and finding out later that you cannot staff it.

## **6.2 The Critical Path**

One of the most important things inside project plans is to make the dependencies between several project tasks clearly visible. It makes no sense that department A offers you all the manpower needed to fulfil their demands but department B can not provide the staff to finish its tasks before department A could start. It would be even worse if, by the time department B would have finished its tasks, department A could not have the requested staff available (which it would have had earlier).

My advice to upcoming project managers is to spend enough time to *figure out the critical path* of your project. You should determine the critical dependencies between project phases and between functional tasks before you finalise the project plan. During the implementation of a project, project managers should focus on monitoring the progress along the critical path. If project managers don't know the main risks of their project then they run the risk of monitoring the wrong things or they spend too much effort in solving 'slight' problems *instead of solving blocking items*.

*You should avoid running the risk of defining the wrong priorities.*

## **6.3 The Unavoidable Risks**

### **Manpower Is Not Available**

Even with PM, there are still risks that the project plan will be changed later.

Project managers defined a first project plan assuming that the manpower would be available as committed by the department leaders. If other projects (which started earlier) do not finish in time then your manpower will not be available. Most probably the first

project will be finished before the manpower is changed from the other project to your project. In this case you don't get the manpower that was committed to you. This might result in having to redefine your project plan. You could plan with more manpower in the remaining project time or the delivery date of your project could shift. For further details please read the chapter 'The Controlling Process'.

### **Problems In The Project's Critical Path**

Another unavoidable risk is that problems may arise along the critical path of a project. If one task along the critical path is not ready in time then this automatically affects all tasks depending on it. This has an impact on your manpower allocation. Assume task A (forerunner of task B) is ready in May instead of April. If project managers got a manpower commitment for April, but in May the people are already allocated for another task, then the whole project is in danger or the next project will be harmed by your delay. In any case, problems along the critical path are very harmful. They must be detected very early and solved immediately before dependent tasks are delayed.

### **Wrong Project Estimations**

The biggest problem in running projects is that the project effort forecast might have been wrong. If your estimate of the costs for an implementation is too low, then you have two problems immediately.

First, the implementation lasts longer. Since this is not acceptable (the customer can not be affected because you made a wrong estimation) you have to find more manpower to finish the project in time. In today's business, where the manpower was reduced in recent years, this is almost impossible without harming other projects. In any case you have a *manpower problem*.

Second, your costs are higher than you calculated. You run the risk that you will produce the product for higher costs than agreed with your customers. Depending on the contract, you run the risk of paying the additional costs on your own. *The project loses its profitability*.

*Spend enough time to double check your estimates.*

Consequently, careful analysis and checking of costs and resources is a key to project success. The experts' opinions must be taken into account in order to estimate the real costs for the project. One very important point is that the people who will later do the development should do the estimates. It is risky if experts do the cost estimations but other people have to develop a requirement. The other persons could have less skill or have a different implementation strategy in mind.

*The one who will do the development should do the time and cost estimations.*

From my own experience as a leader in several projects I know that time and cost estimations are the key elements for successful project managers. For this reason I have devoted a separate chapter to this issue. For further details please read the chapter ‘The Cost And Time Estimation’.

#### **6.4 The Realistic Schedule**

Rule 5 from Baker and Baker says, “You should have a realistic schedule”. (Baker and Baker, 2000, page 29).

They state that project managers are bound to fail if they start a project without a realistic schedule.

From my own experience I see a conflict here, because project managers can have a different *realistic* schedule than customers might have or than the staff might have. Since Albert Einstein we have known that there is no objective reality but that reality depends on the point of view, and the same is valid here. A customer says “I would like to have a product for \$x because \$x reflects the reality”. The project manager could say that the real price is \$y and the expert who would implement the requirement assumes that s/he needs \$z to implement it.

A practical approach in my opinion is for project managers to take the experts’ resource and costs estimates into account. If the experts say that a project is not feasible in a certain time frame then project managers run a very high risk if they start the project, ignoring the experts’ opinions. Team members are also frustrated if they get presented with a project plan they don’t believe in. If project managers start a project but nobody believes in the feasibility of it, then the project managers will have to spend a lot of energy convincing the staff that it will work, and they run the risk of the staff proving that the project is not feasible.

I advise that taking the experts’ opinions into account when you are defining the project plan. Project managers and the experts should make the plan together. If project managers give financial details to experts and the experts are asked to make a proposal of how they can complete the project in time and within the budget, then the experts are involved and they are more willing to cooperate. The more the experts feel accepted the more realistic will be their cost and times estimates.

#### **6.5 The Cost And Time Estimation**

The cost, time and resource estimation is the key process in any project. Every project is bound to fail without correct cost estimation.

You should involve technical experts in the cost, time and resource estimation process. They are the ones who know the system and who can find the most efficient implementation strategy.

*Involve experts in the cost, time and resource estimation process.*

The people who will later implement the requirements should be involved in preparing the estimates. First, they get the experts' ideas and they know how the experts propose to implement the requirements. Second, they can estimate how much time they need to implement the requirements. These figures might differ from the time which the experts estimate, due to the fact that the experts might have different knowledge or skills than the people who will later do the implementation.

*Involve the people responsible for the implementation / development in the cost, time and resource estimation process.*

Please consider the following scenario. You need several people who work in parallel. You ask everybody how long s/he would need to develop his/her part. In this case, I had bad experience with *only adding* the time estimations given by the people without considering the number of people or interfaces involved. If you ask two people how much time they need then these people look only at their area of responsibility and not on the interface between them. The more people are involved in a development and the more interfaces between product parts are changed, the higher are the costs related to communicating information from person to person. If 5 people have to come to an agreement then it costs more time than if only 2 people have to agree on an implementation strategy. I would call this the *complexity-factor*, and it should be added to the sum of previously time estimations.

*Add a complexity factor depending on the number of people involved and depending on the number of product interfaces to be changed.*

It is difficult to put the following issue into numbers but I know from experience that it is also important to consider the number of locations in which you will do the development. If you develop a product in only one location (e.g. one city, one building) then it is easy, fast and cheap to hold meetings. If you have to develop a product in different locations (e.g. several cities or several countries) then it is more difficult to hold meetings. Sometimes it could be unavoidable to travel. These costs and the time involved should be added to the cost and time estimation, which was done by experts, because the experts only see the technical costs but they don't know how you will organise the implementation.

*Project managers should consider if time or money would be lost due to structural organisation (e.g. several location; difficult communication)*

## 7 The Executing Process

### 7.1 A Network Diagram

Project teams are something special and unusual. A project manager is chartered for a certain time with some people who had not collaborated before. These people don't know each other and they don't know the responsibilities of the other persons. They don't know the qualifications or the experience of the others. They don't know the network in which they work.

This situation differs completely from the working environment in which the people worked before. Before project management was introduced, the people worked in departments and in groups. They knew the network in which they worked. They knew who could answer their questions.

I have worked now in several projects and I have found out that the changed network became one of the biggest problems if it was not handled in an appropriate manner from the very first moment onwards.

The project team members feel unsure about whom to contact should they have any question and you can be sure that questions will arise sooner or later. In former times they knew which groups or which people were responsible for a certain function. Now, with project management, the groups are not responsible anymore but only people *out of* the groups. If a group consists of 5 people then it can happen that all 5 people are working now for 5 different projects. As a result, if someone in a project needs support from this technical experience then s/he must contact not the group but the person inside the group working for this particular project. The information "which person out of which group is working together with me in my project" must be transparent, it must be communicated and it must be kept up to date. This is one of the essential responsibilities of the project core team.

*Project Managers have to communicate to their project team members who is responsible for what function in the project.*

Equally important is to communicate who the direct contact persons are for everybody in case of general issues. E.g. if you don't get an answer from another project team member then you should know who to contact. In former times (functional organisation) this was never a question; you asked your direct superior for support.

*Project managers have to communicate the project hierarchy to their project team members.*

You should keep in mind that all this information has to be defined before a project starts:

- Who inside the company is responsible for what, in relation to a particular project?

- Who inside the project (core) team is responsible for what?
- Who reports to whom inside the project team?
- Who is allowed to decide what, within the project team?

Additionally, the information listed above must be kept:

- Up to date.
- Accessible to everybody.

*The project manager is responsible for this.*

## 7.2 Team Building And Communication

I already explained in the chapter 'A Network Diagram' why giving structural information is essential from the functional point of view. This is unfortunately not enough to guarantee a successful project.

Project managers have additionally to convince the project team members of the sense of their project. In a functional organisation this is not necessary. Functional superiors have (hopefully) sufficient authority for their subordinates to rely on what superiors say. In a project team this is not automatically given. If project managers are not known to the project team members then they will have to do a lot of hard work to set the people on fire for the project. In my opinion this is essential or at least fruitful for the success of a project. If the team members are convinced of the long-term success of the project and the project's justification then they are willing to work for the project managers.

*Project managers have to inspire the team members.*

In a functional organisation the functional groups work in an effective manner because the group members know each other, know how much they can rely on their colleagues' commitments and because they (hopefully) established a team spirit. Team spirit is something that needs time to grow.

Allan R. Cohen defines a group building process in the following way:

Stage 1: Membership	Members are individually deciding how committed they want to be to the group. Interaction is polite and guarded as members size up each other.
Stage 2: Sub-grouping	Members seek allies and tend to speak from subgroups; conflict is indirect and positions are not fully clear.
Stage 3: Conflict	Conflict emerges across subgroups. This is a difficult stage as members wonder if relationships and the group itself can survive these battles.
Stage 4: Individual	If conflict has been successfully resolved, members

Differentiation	feel comfortable in being themselves. Low group conformity exists as members accept each other's individuality.
Stage 5: Collaboration	The team works collectively to solve problems and to support each other in implementation. A synergistic outcome results. The whole is greater than the sum of the parts.

(Cohen, 1995, page 61)

Project managers need to know that it takes different periods of time to pass these steps depending on the groups' sizes and depending on the leaders' activities to speed up the process.

In short projects (e.g. around 1 or 2 months) it is not possible and not necessary to consider these 5 stages. The time is too short to enhance the project team performance because stage 1 of the group building process will take at least a month.

In long projects (e.g. more than three or four years) it is not essential for project managers to speed up the team building process. From my experience, and from what I learned in management courses, in middle-sized groups (e.g. 5-10 people) the process takes six to twelve months. If your project team outperforms as a collaborating team in two out of three years then this is a good result. For this reason I don't consider it as an issue for project managers to enhance team building if the project runs for more than three or four years.

In middle-sized projects (e.g. one to three years) it is useful if project managers consider the aspect of team building. In this case, project managers should not wait until the team building process is automatically over because by then the project might be over.

From my experience I know that communication is one key element for enhancing the team building process.

First, establish regular meetings and use these meetings to *let the colleagues talk*. If you do so then the team members get to know each other faster than if you hold meetings where only the project manager talks.

Second, in my opinion it is unavoidable that project managers or the project core team members monitor all interfaces between project team members to determine that they are 'alive'. They must detect which interfaces exist and they must check that all involved parties are discussing these interfaces in a fruitful manner. People tend to ignore unsolved problems in stage two or three. They don't bring problems up in these phases because they don't *want* to discuss them with their team members. As a result, these problems will come up later in a project and solving them then will cost more.

*Project managers should check that all team members communicate with each other.*



### 7.3 **Communicate The Project Status**

In the functional organisation the group leader is the one who informs his/her group members about the status of ongoing tasks.

In project management the project managers should communicate the project status regularly to their team members. They should do this always – both when no problems exist and everything is in time and when problems do exist.

*Project managers should regularly communicate the project status to their team members.*

### 7.4 **Celebrate Milestones**

In the functional organisation, getting together for social activities enhances the team spirit. The functional groups celebrate birthdays, celebrate official vacations, talk about their private vacations and they participate in some outdoor activities.

These activities could (and in my opinion should) also be done in a similar way in a project team. Project managers could do the kick-off meetings in a very formal way or they could do it like a birthday party – the birthday of the project. I prefer the latter one.

*Project managers could begin a project with a project-birthday party.*

Project managers should celebrate whenever intermediate milestones are reached. This is important for the morale of the team. Intermediate celebrations show that the project managers respect the work that has already been done and that they are looking forward to the next project steps. Intermediate celebrations are a positive feedback to the project team members.

*Project managers should celebrate milestones with all team members.*

It is almost superfluous to mention that the end of a project should be celebrated, too.

*Project managers should celebrate the end of the project with all team members.*

## 8 **The Controlling Process**

Another important task of project managers is to control the progress of the project. They have to evaluate whether or not the project implementation is progressing according to the project plan. Please remember that the project plan was communicated inside the company and also to the customers. Consequently, the customers have had a clear commitment and know when they can expect the product.

S. and K. Baker wrote the following: “Be sure to gather status information from all members of the project team, even from people low on the totem pole who don’t report directly to you. More-senior team members may whitewash or deliberately misrepresent problems in a misguided effort to present themselves in the best possible way.” (Baker, 2000, page 273)

I advise you to keep these words in mind. I think they are right.

The important improvement with project management is that the project should have been divided into phases so that the progress can be evaluated per phase and not only at the end of a project. In today’s business, the project phases are closed by *reviews*. Reviews evaluate if the outcome of a certain phase fulfils the demands which were previously defined for this phase. The advantage is that nobody can move open issues to a later project phase or, if it is done, then this person can be held responsible for not fulfilling the phase exit criteria.

*Project managers should define several project phases and they should define entry- and exit-criteria for each phase.*

The reviews should monitor:

- If the status of the phases are according to the project plan.
- If the expected volume of output per phase was reached.
- If the expected quality per phase was reached.
- If the project costs are according to the project plan.
- The collaboration and team spirit of the team members.

The reviews bring to light:

- If a certain project-phase could not be finished. This means a project has been delayed.
- If the project implementation was not according to the customers’ requirements. This means a re-design or a discussion with the customers is necessary.
- If the cost and time estimations were correct. If, during the project implementation, it turns out that the man-hours will be higher, then manpower re-allocation will be necessary. If it turns out that more manpower would be needed for another technical aspect then manpower re-allocation would be necessary.

In the event of problems arising during the project, it is the project managers’ responsibilities to find a way out and, in the worst case, to make it official to the customers and work with them to find a solution.

What actions should be taken?

First, the project managers have to find out what the project problem is. Is it an interpersonal problem? Does bad communication cause the problem? Were the resource estimates incorrect? Are the correct people on board? Is the customer requirement understood correctly? Is somebody making things appear worse than they are? Is

somebody blocking the progress? Is somebody developing more than necessary and therefore using more time and budget than expected?

*Project managers have to identify the reason for the project delay.*

Second, after the project managers have an idea about what the real problem is, they should communicate the project situation to the project team members. They should ask the team for support. It is important that the project managers find a way to visualise the problem and to find a way of presenting the problem so that the project team *wants* to find a way out. It is fatal if the team does not realise how critical the situation is or if it does not want to find a way out. If the team members have the attitude that the project managers have to find a solution or that the project managers have to find more people, then the project managers are lost. The team must be *willing* to find a way out. If the team wants this but is unsuccessful in solving the problem alone, it's another situation, but the team must be willing to support the project managers.

*Project managers should ask their team to solve the problem internally.*

Third, if the project managers and their teams need external support (e.g. more or other manpower) then they have to involve the department leaders, senior managers and maybe the CEO. In this situation it is helpful to be a project manager of a high-priority project. If your project has a low priority in your company then you as a project manager will get no more staff than what you have. If you have a high-priority project then you don't have to worry; you will get all the manpower you call for.

By the way, this makes a big difference in handling a project. If you run a high-priority project then *you don't need* to consider team building and you *don't need* to ask your team for support. You just go inside your company and ask for more people. You will get them. There is one thing you have nevertheless to consider and this is the budget. If you call for more manpower then you should have strong arguments explaining why you are causing budget overruns. If you can explain this, then don't worry, your company will support you with more manpower.

The picture differs completely if you run low-priority projects. In this case you have to be flexible and creative. In this case you need your team's support to solve the problem by themselves. The company will not help you with more manpower.

*Project managers have to inform the company about the project problems.*

If no solution can be found inside the company then the customer should be informed early in time. I have good experience with asking customers for their opinion. Customers often have a certain understanding for upcoming and unforeseeable problems.

They are often willing to find a solution together with you. I had good experience with the following models.

- One model is to delay the project. If customers need to have a full-functionality delivery then there is no alternative but to delay the whole project.
- Another model is to make a delivery in time but with reduced or changed functionality. Sometimes customers don't need all the functionality they requested first or they have changed their opinion meanwhile.
- A third possibility is to make several deliveries. The first delivery could contain the main features and some later deliveries could provide the remaining features so that the customers could start using the product in time but the full-functionality would be ready later.

In any case I prefer to involve the customers in the solution finding process although I know project managers who do not. Some are still hiding the project delay as long as possible hoping that the project will catch up the lost time. I suppose it is a good alternative to do so if the company's relationship to the customer is critical. If your customer gave you a last chance then it could be damaging to inform him/her too early. If the company's relationship to the customer is good then it looks more professional to me to work together with him/her.

*Project managers should consider involving customers in finding a solution in the event of project problems.*

## **9 The Closing Process**

The closing process should be used to bring the project to a controlled end. This project phase is important because project managers could take the following actions in this phase.

They could release the project team members. It is important to inform the team members when the project is finished and from when onwards the team members don't have to support the project and the project managers anymore.

The project managers could also do a summary of the project. This summary could be a review of the project's process, a review of issues or a review of the financial outcome of the project. Verify if the project was in time, in budget and in quality.

One more thing could be that project managers figure out their learning from the project experience.

## 10 Final statement

I tried to point out the customer-related aspects of project management.

Here is a summary of the key-elements of project management which you should keep in mind.

A separate team (called *project team*) is defined that works for a specific project instead of working for several projects in parallel. This team is composed of people who still belong to a functional organisation. This implies that a new team building process per project will be necessary and the project manager should be aware of this and s/he should undertake *team-building actions*.

A dedicated *project manager* will be identified who *is the contact person* between customer to company and customer to project team. S/he will ensure that the customers' requirements are known to and implemented by the project team.

The project manager defines a *project plan* in which s/he divides the project into *several phases* and in which s/he shows the *dependencies between the phases* and the *dependencies between project sub-products*. The project plan also reflects the *critical project path*. The project plan is the core of the project.

Project managers combine several manager functions and several team leader functions.

On the one hand, *they are managers* because they define project plans, monitor if the projects are progressing according to the projects' plans and if not they take corrective actions.

On the other hand they *are team leaders* because they have to be able to build a project team within a relatively short time. They have to be able to communicate well. They have to inspire the team members and they have to be able to solve communication problems within the project team.

One key-aspect of communication is that they define and communicate the project-related *network diagram*. They communicate who is doing what, who reports to whom and whom to contact when questions arise. This network-diagram is essential for successful project management.

If they have a choice, project managers should only start a project in which they are convinced that the cost, time and resource estimation process was thoroughly done or will be done under their leadership. *Correct estimations are key-prerequisites* for successful project management.

If they have a choice, project managers should only start projects when they are convinced that the projects have high priority inside the company. If this is not the case

then a high risk exists that manpower will be taken away from their projects if other projects get into trouble.

Project management is an *iterative process*. The first iterative process is to define the first project plan. During the project the monitoring, the evaluation and the re-planning are iterative processes as well. For this reason, project managers have to be willing to change and to rework their own planning. Their *working environment is not smooth and stable*. They should know this fact and they should like it.

Project managers should be *willing to listen* to other people. They should listen to the technical experts who might see problems or ways to make something more easily. They should listen to the customers in order to realise changes soon enough. They should listen to the team members in order to realise communication problems in the early stages of the project.

And finally, project managers should be willing to *work always with other people* from project to project. They have no guarantee that in their follow-on projects the same people will work as they did in their first projects.

Project managers should regard conflict solving as a challenge and not as a burden.

## 11 Appendix

### 11.1 The Five Project Management Processes

In this chapter I would like to list the processes which S. and K. Baker mention in their book “The Complete Idiot’s Guide to Project Management” because I regard them as useful to keep in mind.

#### The Initiating Processes

- Identifying stakeholders including initial members of the project implementation team.
- Recognising that a project is worth doing.
- Deciding that the risks associated with the project are appropriate to probable success.
- Determining what the project should accomplish.
- Defining the overall project goals.
- Defining general expectations of customers, management, or other stakeholders.
- Defining the general project scope.
- Developing the statement of work that documents the approved deliverables and the operational guidelines for the project.

#### The Planning Processes

- Refining the project scope, which includes identifying the balance required among results, time, resources, and project quality.
- Listing tasks and activities that will lead to achieving the project goals.
- Sequencing activities in the most efficient manner possible.
- Developing a workable schedule and budget for assigning resources to the activities required to complete the project.
- Getting the plan approved by the appropriate stakeholders.

#### The Executing Processes

- Leading the team.
- Meeting with team members.
- Communicating with stakeholders.
- Fire-fighting (also known as conflict resolution) to solve problems that always arise during a project.
- Securing necessary resources (money, people, and equipment) to carry out the project plan.

#### The Controlling Processes

- Monitoring project progress and deviation from the plan.
- Taking corrective action to handle the day-to-day obstacles and problems that all projects seem to run into.
- Receiving and evaluating project changes requested from stakeholders and team members.
- Rescheduling the project if necessary to meet resources or outcome constraints.
- Adapting resource levels as necessary to achieve on-time delivery of project outcomes.
- Changing the project scope to meet project goals (but only when this is an appropriate and acceptable response).

- Returning to the planning stage to make adjustments to the project plan when necessary to get changes approved by the stakeholders.
- Documenting and gaining approval for all changes to plans and project specifications so no one is surprised at the final outcome.

### **The Closing Processes**

- Shutting down the operations and disbanding the team.
- Learning from the project experience.
- Reviewing the project process and outcomes with team members and stakeholders.
- Writing a final project report.

## **11.2 The Twelve Golden Rules Of Project Management Success**

In this chapter I would like to list the rules which S. and K. Baker mention in their book “The Complete Idiot’s Guide to Project Management” because I regard them as useful to keep in mind.

- You should gain consensus on project outcomes.
- You should build the best team you can.
- You should develop a comprehensive, viable plan and keep it up to date.
- You should determine how many staff you really need to get things done.
- You should have a realistic schedule.
- You should not try to do more than can be done.
- You should remember that people count.
- You should gain the formal and ongoing support of management and stakeholders.
- You should be willing to change.
- You should keep people informed of what you are up to.
- You should be willing to try new things.
- You should become a leader as well s a manager.



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