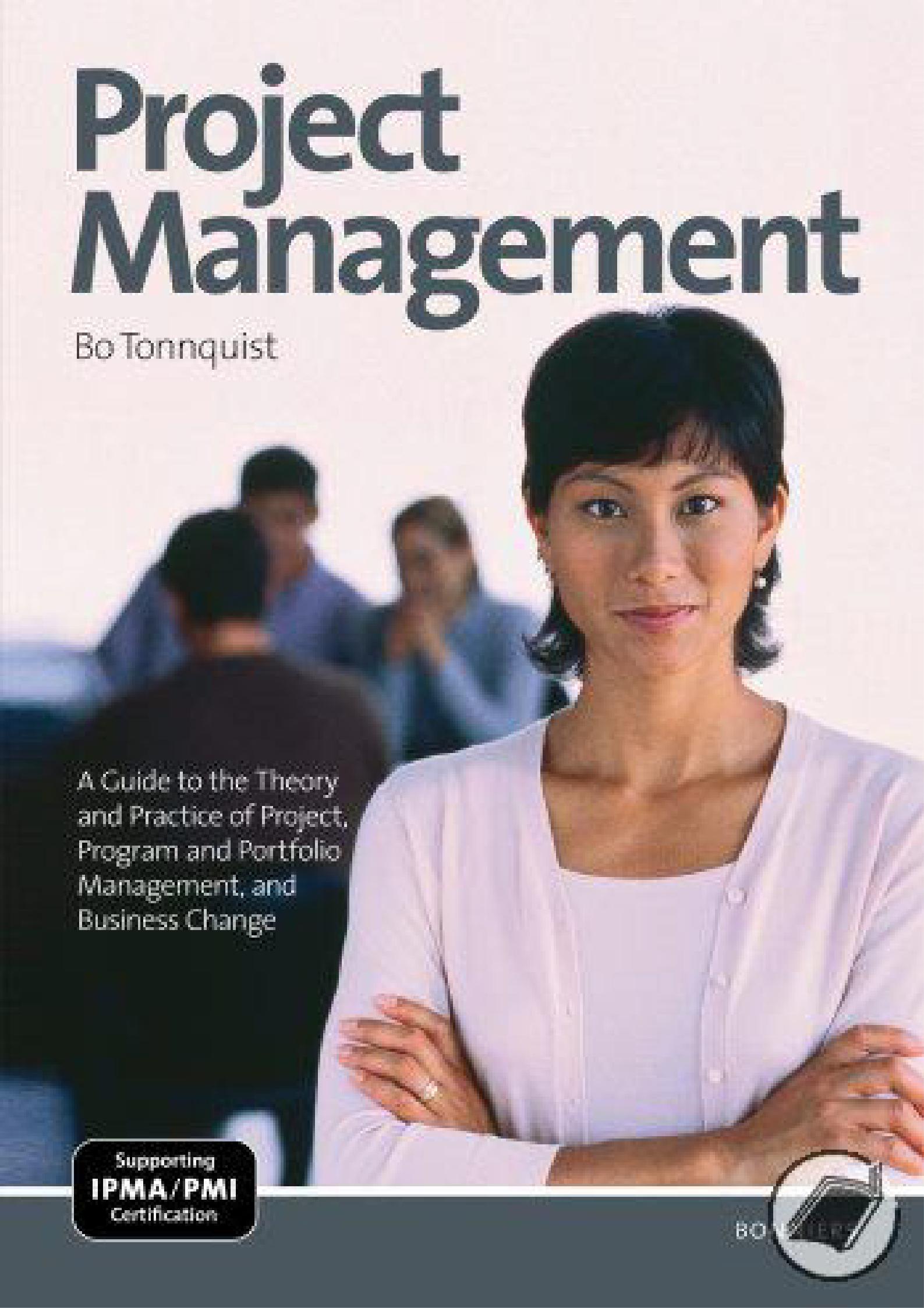


# Project Management

Bo Tonnquist



A Guide to the Theory  
and Practice of Project,  
Program and Portfolio  
Management, and  
Business Change

Supporting  
**IPMA/PMI**  
Certification





1

# Project Management Structure

Why are projects a continuing theme within organizations and why do they take on the shapes that they do? These are two basic questions that are strongly connected to the needs for effective leadership and management within companies and organizations.

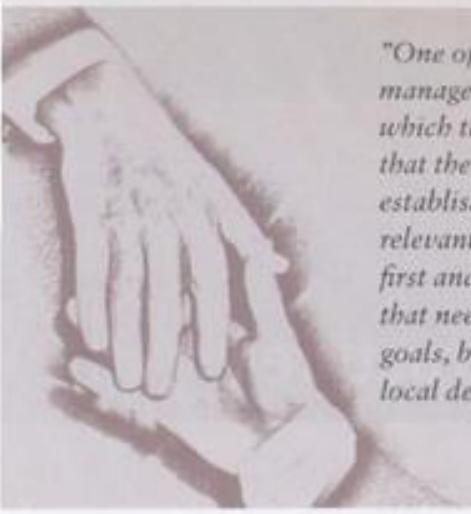
Before we go into detail on the subject of projects and project management it is necessary to start with some information on the purpose of planning and organizing a business.

## THE PURPOSE OF THE ORGANIZATION

**T**HE PURPOSE of organizing a business is to achieve increased efficiency. The goal is to optimize the use of the available resources. Resources are always limited.

Neither the business nor its organizational structure has an own value. Its only justification is to satisfy the customers' demands in the most effective way. The business constantly needs reevaluation. Employees should never forget why the business exists.

An organization where the goals are perceived unclear and vague and the management as diffused and disconnected can never be effective since this brings about insecurity which in turn impinges on employees' ability to work effectively.



*"One of the most important responsibilities for the management is to build an efficient organization, through which the business goals best can be reached. This means that the most suitable organizational structure has to be established, and that every position needs to be filled by a relevant individual. Creating the organizational structure first and foremost necessitate identifying the various tasks that needs to be done in order to reach the organization's goals, but also a horizontal delegation of these tasks to local departments and individuals."*

(Tartas Sallfors, The Royal Institute of Technology, 1945)

Organizations can be likened to organisms which need a steady supply of energy to survive. It is important to ensure that the will to service the customers is the business goal, not the survival of the organization. The strategies chosen by the management to reach visions and goals must be reflected in the framework of the organization. One could say that an organization is essentially formalized group building which is coordinated to achieve common goals.

As a consequence of this organizational structure, it is possible to allocate labor, responsibility and authority. The organization is also a tool which regulates the relations between superiors and employees. All this is part of the process to, in the most effective way, control and coordinate resources internally and externally in the organization, towards the goals which are predefined. This is irrespectively of whether the organization is a private, public or a non-profit making business.

### Structure, Processes and Culture

Research within Organizational Theory concentrates around three main topics; namely structure, processes and culture. The structure of the organization contains visible components e.g. functions, positions, hierarchies, titles and ranking orders, while the *processes* deals with actions and events. The organiza-

tion's culture touch upon work ethics, values and norms, beliefs, languages, symbols, leadership and motivation.

It is the processes which constitute the organization's vital operations while structure and culture indicate how the individuals within the organization work, collaborate and obstruct one another, how systems are built up or broken down and how decision levels and authorities are shared.

Modern organizational theory increasingly concentrates around the business processes, since these originate in the business plan. A process is a chain of interconnected activities both internally and externally of the company, which creates an added value the customer is ready to pay for. Every activity in the chain has a supplier and a customer. The purpose of identifying the business processes is to eliminate any unnecessary work which does not generate customer added value. The business has to be shaped after the needs of the processes.

Today's organizational structures will with all probability be succeeded by other alternatives. There are several reasons for this. Firstly, all businesses are constantly affected by continuous changes in society, new technology, new knowledge in employees and changing living conditions. Secondly, we have greater knowledge about businesses and understand more about people's behavior in organizations. Lastly, employees and citizens of today place larger demands on the businesses they want to work in; e.g. environmentally and gender-wise.

The development of the organizational structures of today has a historic and a cultural dimension. Therefore organizational structures in one culture do not necessarily apply in another culture. The informal Swedish way of managing a business does not work in all countries. Consensus decision-making and involving employees on all levels does not work in more hierarchical business cultures. Here, the boss is expected to make decisions without consulting the employees.

## Organize and Delegate

The most common way of illustrating a company's formal organization is through hierarchy with superior and inferior divisions. This is typically called an *organizational plan* or chart. This chart shows how the organization is meant to work and how labor, responsibility and authority are distributed.

With the organizational chart as a starting point it is easy for the employees to picture their roles in the organization. It is easy to follow the decision-making process and identify managers and subordinates. Responsibility is definite and straightforward.

On the other hand the organizational chart does not specify the informal ties between the different individuals in the different departments. This can be a problem today when more and more tasks are completed in cross functional networks and project groups, with members from different parts of the organization.



## PROJECT ORGANIZATION

More than ever nowadays people want to be able to influence their situation and feel involved in the company they work for. Increased competition and uncertainty on the job market forces companies to act fast. It is easier to define and start projects than setting up new departments in a company. Projects generally have a shorter run-time which in turn entails lower risks, lower costs, and better management. Since projects must always have specific goals, focus on customer value becomes very apparent.

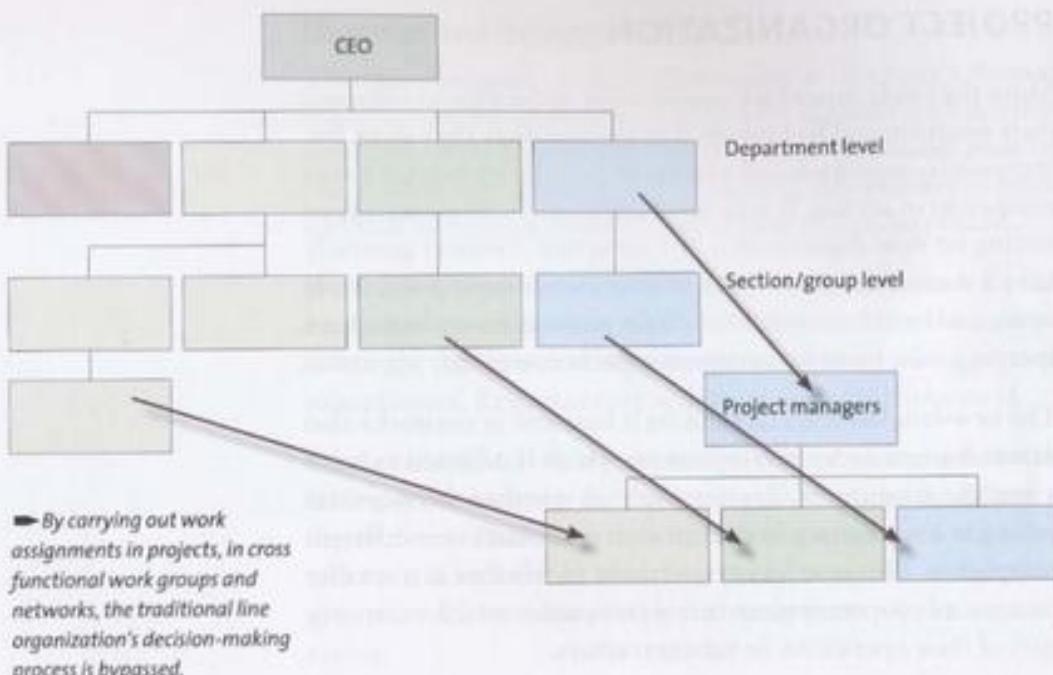
The new-fangled ways of running a business in networks also demand a new form of cooperation which is adjusted to solve a specific assignment, irrespectively of whether the members belong in a workgroup from their own organization or different companies. This is valid irrespectively of whether it is smaller companies cooperating, or major companies which outsource part of their operations on subcontractors.

Traditional decision- and delegation methods do not work in networks. The project structure with an integrated project manager is in these cases much better adapted to manage different detached activities with a common goal.

Networking can also be involuntary. The development in the labor market, where an increasing number of people are found without the security of steady employment, thus being forced to accept temporary work as self-employed, put new demands on flexibility.

### A Project – a Temporary Organization

The project organization is appropriate when there is a need for coordination between various parts of the company. In principle, the project manager is allowed to "skip" the line organization's decision- and responsibility processes to create an optimal organization. It is, through this, possible to keep a strong focus on customer value through goal management, reaching down to each individual in the project organization.



The project organization is temporary and this even applies to the project manager's mandate as a leader. When the project is closed the organization is disbanded.

Just like most manufacturing companies carrying out their own research and development, the car industry uses project management when they develop new models. It requires strong focus and tough management to develop a new car model program while keeping the costs down.

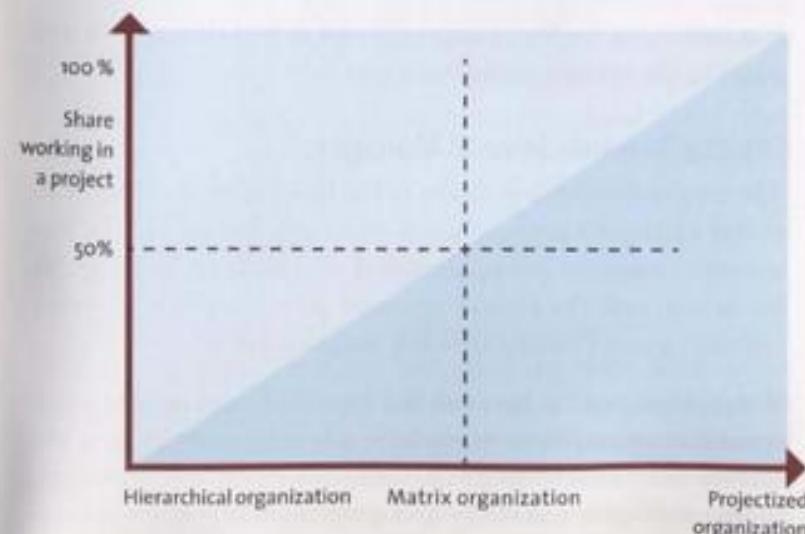
The Swedish car manufacturer Volvo uses a method called "Modulteam" which entails start-up of a project group which consists of specialists from different departments within the organization, e.g. engine, body components, transmission, interior and electronics. They are on loan to the project and are part of the group as long as the project is running. After that the group and its members return to their ordinary responsibilities or join new project groups.

## Project vs. Line

It is important that delimitation between the project and the ordinary business, the line organization, is unambiguous. In a *projectized organization* the project is completely detached from the ordinary business. The project manager has full authority over his resources and does not face the risk of project members with imperative competence being stuck with ordinary work assignments or on loan to other projects. This, unfortunately, could happen if the project does not own resources, but share them with other projects or the ordinary business. The latter is more often than not, though, the reality for most project managers.

Often different organizational structures exist parallelly alongside within the same organization. A common form of coexistence is between hierarchy and matrix. In the hierarchical organization work assignments and decision-making processes are arranged in lines from the top to the bottom. Most power and authority is found higher up in the organization.

The weakness facing the hierarchical organization is that the individual's sphere of influence is diminutive, and that it is difficult to adapt to the changing external factors. In addition, the hierarchical organization tends to engender passive employees.



The matrix organization is on the contrary very flexible in its structure. Employees are working vertically whilst the business is run cross-functionally. The management's responsibility is to put together functional groups which purpose is to solve specific tasks. This organizational structure's weakness is the two-way decision-making process, which puts high demand on managers to formulate goals and prioritize tasks.

For organizations where the hierarchical decision-making processes are dominating we speak of a weak matrix, in case of the contrary we speak of a strong matrix. Projects run in a weak respectively strong matrix face different circumstances.

In a weak matrix a small part of the employees work in projects. Most hold positions in the line organization where the better part of all work in the organization is executed. Consequently, the line managers make most of the decisions, even those which concern the projects. The project manager has a weak position in this kind of organization.

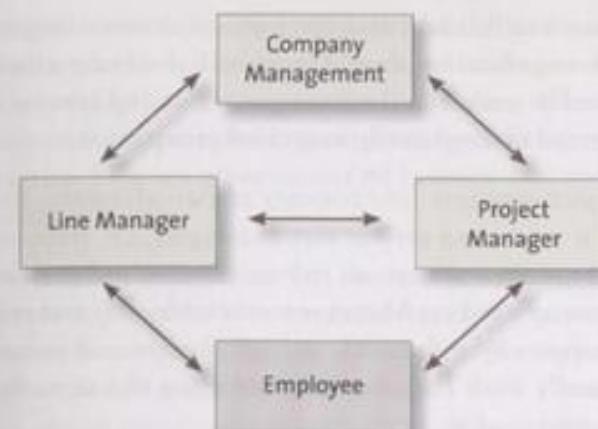
In organizational structures where more people tend to work in projects, the project manager's possibility to control the project will increase. In the strong matrix the line managers only make overarching decisions on goal, scope and resources. Details are left to the project manager. Generally the organization use projects as their corporate business approach.

It is important for the project manager to be familiar with and adapt to the organizational structure.

### Loyalty Towards Several Managers

The employee with a position in the line production, but who is also a part of a project, has in effect two managers. The line manager, where he is employed and who most probably settles his salary, and the project manager who hopefully dispense interesting and challenging work assignments.

If the prioritization between the line work and project work is unclear an employee might have a loyalty problem. It is the management's responsibility to see to it that both line managers, project managers and the project group members know what is



most important and what to focus on. An unclear prioritization results in the employee prioritizing and working on what benefits him or her primarily.

A successful project result is dependable on the cooperation between the line production and projects. Line managers create value through improving individuals' skills and processes. Project managers create value through delivering results and changes. To succeed with a project, line managers' motivation and enthusiasm is needed, but they seldom want to offer resources since this on a short-term basis generate more problems than benefits for them. Few rewards systems promote cross-organizational cooperation. In too many organizations there is a built-in aversion between line managers and project managers. Line managers often see project managers as competitors, while project managers see line managers as encumbers. They do not see the mutual benefits, nor that they are depended on each other to make the organization work. The top management can never abjure the responsibility in making cooperation in the organization successful.

The understanding of the fact that projects need realistic prerequisites to succeed, has reached top management level within organizations and businesses. It is a natural consequence that more labor is done by way of projects, which increase the need to handle projects and resources in the most advantageous way. To master project management is no longer something which

only concern technicians and developers, but something everyone in an organization should be able to do. Every employee is expected to understand what a project is, and how to work goal-oriented in temporarily assembled groups.

The project manager role consists of two elements. Project Control is mastering project methodologies, i.e. structuring, time and resource allocation, risk assessment and evaluations and follow-ups. *Project Management* is leadership and making things happen by influencing project groups and surroundings. Usually both roles are involved when the term Project Management is used.

## PROJECTS HAVE TO ACHIEVE RESULTS

Projectized work is a methodology that suits many different types of assignments. It is an effective way of realizing visions and business goals, but individuals can also use projects as a means of reaching personal goals.

Primarily, this book will deal with projects carried out within companies and organizations. For this reason we will start by going through how projects are connected to the organizations' management and goals.

Projects can be carried out externally for a client, or internally within the organization, with internal or sourced resources. There are no limits which tell us how small or how large a project can be when it comes to the number of individuals involved, or the time it takes to complete.

### VISIONS AND BUSINESS GOALS



A project is a tool to promote change.

The organization's vision and goals should lead and determine all endeavors. The overall goals will influence both the work activities and the organizational structure. The company management operates the organization by defining strategies and tactics. This is a given part of all business and operational planning.

The strategies guide the way to the business goals, which are long-term and therefore need to be broken down in more tangible action plans which regulate daily work. An action plan is best described as a process with specified work elements in a flow. Certain processes are permanent and repetitive, while others are temporary. The permanent processes are routines in the line operation, while the temporary usually are projects. The management can make use of projects to execute tasks of temporary nature. Working in a projectized structure makes it possible to gather resources from different parts of the organization and to focus on a specific goal.

Through initiation, starting and finishing projects the management can guide operations towards the business goals, or initiate investments in new ventures. It is therefore the management's responsibility to ensure every single project has realistic prerequisites to be realized. It is by and large about well-defined goals, visible clients, and access to resources and support from the organization.

### Business Level and Project Level

The connection between the management's modus operandi and the work which is done in the project can with advantage be described in a model with two levels:



The business' long-term development rests on the organizational level. On this level all projects in the business are managed and prioritized. This is where the responsibility for all project methodologies and management systems lie, and that these are adapted to the businesses and the projects needs.

**The company management manages projects by:**

- initiation, follow-up and closure of projects.
- confirming that projects are in line with the strategic goals of the company.
- allocating resources.
- coordinating projects within the organization.
- supplying management tools, project models and methodologies.
- managing business opportunities and assessing and controlling risks.
- placing demands on project managers.

On the *project level* the project is managed and executed by applying the project methodology. The project manager's responsibility is to deliver results through organizing and managing, while the project group plan and execute the project tasks.

**The project manager manages projects through:**

- securing project goals are reached.
- communicating and delegating tasks.
- engaging and motivating project group members.
- applying management tools and project models and methodologies.
- communicating results and managing changes.
- managing business opportunities and risks.

**The project group executes projects through:**

- performing activities and tasks accordingly.
- following the standard processes, quality systems, methodologies and routines of the organization.

- proposing enhancements of solutions, processes and plans.
- communicating status.
- advising on possibilities and risks as they appear.

### The Management Manages through Tollgates

*Tollgates* are the sponsor's tool to monitor and manage the project. A tollgate is usually a meeting where reached goals are evaluated and the project's future destiny is determined. The sponsor has, in terms of being the owner of the project, responsibility for the tollgates. The project manager's responsibility is to deliver the promised end-result.

#### Tollgate examples

1. Project initiated and pre-study phase to commence
2. Pre-study completed and planning to start
3. Project planning completed
4. Project execution commenced
5. Project verified
6. End-result delivered and goal verified
7. Project closed
8. Business impact verified

After tollgate assessment one of the following three outcomes might ensue:

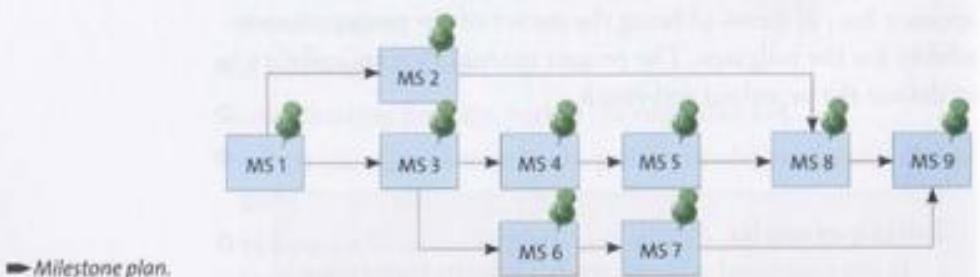
1. Continue according to original or revised plan.
2. Go back and postpone the decision until part of the project has been changed or additional information has been collected, or until external factors are more favorable.
3. Terminate the project and document end-result. Complete final report, close accounts and close project group.



## The Project Manager Manages with Milestones

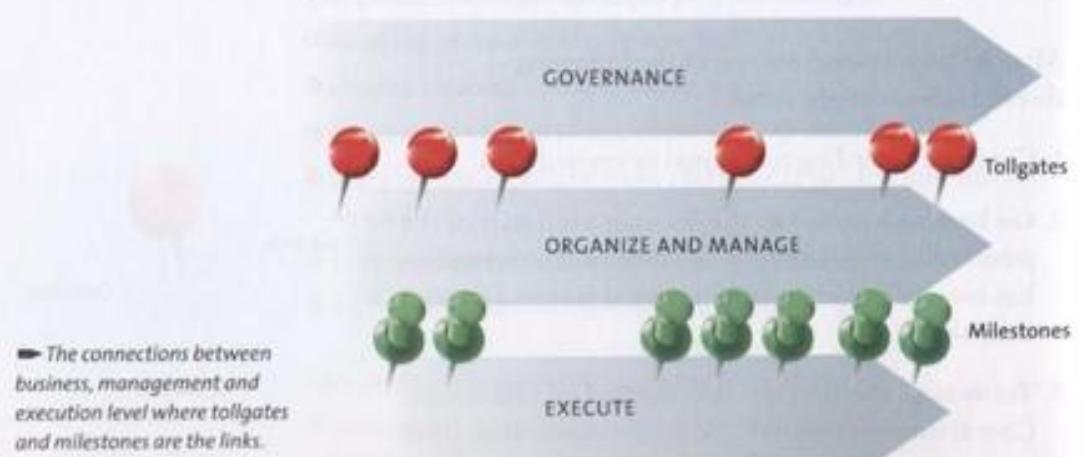
A *milestone* is a step on the way between project initiation and closure. A milestone is something which has to be achieved, and it can also be deliverance to and from the project.

An overall plan which shows the milestones of the project is a good communication tool. It visualizes how the project is thought to be completed.



► Milestone plan.

During the execution phase the milestones make up the deliverables which assist the project manager to monitor and report on status. Most milestones are therefore found when the end-result is produced. The project group task is to make sure milestones are reached.



## PROJECT FLOW

A project can be described simply as a process or an undertaking with a start and an end. A more detailed description of the project process means more control over the project work and the requirements on the execution of the project.

### Process definition:

- A process is a series of continuous activities.
- A process refines goods or services to meet needs.
- A process has at least one supplier of inputs and one recipient of outputs.

The purpose of describing a work task as a process is to make sure it is carried out in a predefined way to ensure similar execution every time. Processes are described and are for instance ascertained in methodology descriptions and quality manuals.

Project work actually consists of several processes which all have their own purposes and goals. There are all sorts of processes in many categories in a project.

The main flow in the project is the *core process* which contains the work tasks that leads to the project's end result, while the *supporting processes* deliver everything that is needed to execute the work in the core process. Resource supply to a project is a typical support process. In a construction project e.g. food deliveries and staff recruiting are *supporting processes*.

### A Project's Phases

Often a project is described as a course of events with a number of phases, and this is also the core in most project models.

The *project lifecycle* described in this book is a general project model consisting of four phases; *pre-study, planning, execution and closure*.

### Project phases:

- Pre-study – analyze prerequisites and specify the assignment
- Planning – produce plans for execution
- Execution – work in the project and implement result
- Closure – evaluate and close project

The model also includes *impact realization* and verification of the *business impact goal*. This is to ensure that the project is actually followed up and evaluated.

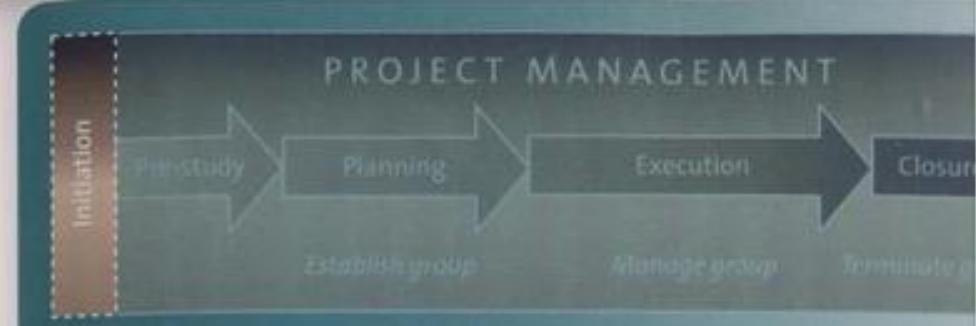
The general project model is simple and can easily be compared to other more specific models. This helps communication between individuals from different companies and organizations that are used to working in distinct company models.

There are a number of common project models, and what is obvious is the fact that the similarities are greater than the differences. What primarily differs are the number of phases and what they are called. The structure and contents follow the general project model in principle.

The project and the project's phases can be described as processes. Each phase must be initiated, planned, executed, closed and managed, and preferably also evaluated. Every phase can therefore also be considered a small project within the project.



► General project model.



## Project Initiation

Project initiation is the process which starts the project. Without initiation the project does not exist. The initiation can for instance arise from a decision taken at a board meeting, or by order from a sponsor.

The most important elements are objectives and goals, that the project is accepted by the organization and that a budget has been defined.

## DEFINING A PROJECT

WHEN is it in fact a project and what defines a project as opposed to the regular day-to-day operations? If we are formal and follow the definition of project methodology it is neither the size nor the length of it which determines whether it is a project or not, but whether it is specific and limited in time.

A project is a work method or methodology, with a strong focus on the goal. The project needs to be time bounded and have appropriate resources. This is why the goal has to be clearly defined and a budget must be in place to the project manager's disposal.

### Definition of a project:

- Specific goal – a unique assignment
- Specific time period – timed
- Specific resources – own budget
- Unique work arrangements – temporary organization

The assignment is considered a project when all these criteria are fulfilled. The last criteria concern the fact that the human resources only partake in the project as long as the project is on-going. This, and that focus is on the goal, often allow for new work methods and deviation from ordinary routines.

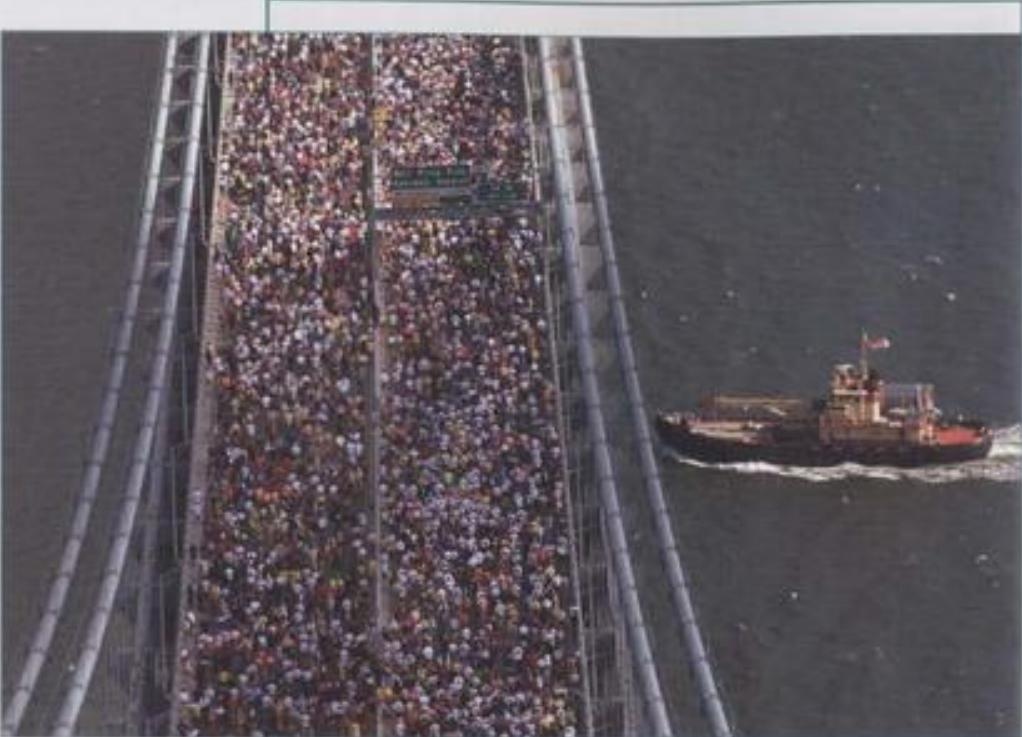
All criteria are usually not met when a project is initiated. A part of the initiation process is therefore focused on meeting these criteria.

Almost anything is possible to be run as a project if wanted. It is also possible to carry out the same tasks and assignments without initiating a project. Test and find the most suited solution for you.

I find that all examples in the chart on page 19 can be carried out as a project, but not necessarily. A project also brings with it more administrative work which might be too burdensome when the tasks are insignificant. The project methodology can be applied even in assignments which do not "qualify" as a project.

For instance, it is possible to apply the method when carrying out the yearly budget planning, or when recruiting new staff. Both cases have defined goals and determined deadlines, but are not necessarily projects. In one's personal life it is possible to apply project methodology when planning sizeable events like Christmas celebrations, large dinner parties and significant birthdays, launching of the boat or improving a golf handicap!

Assignment	Yes / No	Why?
Move company headquarters		
Establish customer service desk		
To plan a wedding		
Move to a new house		
Participate in a fair		
Cultivate new clients		
Set up a play		
Launch a new car model		
Build a new intranet		
Find out if there is a demand for a new product		
Find cheap airline tickets		
Develop regulations on travel policies		
Develop a new cell phone		
Renovate the log cabin		
Write a book		



## NEW YORK MARATHON

The NY Marathon is a reoccurring event which takes place the first Sunday in November every year. The marathon always has many athletes coming from all over the world to participate. Many of these run several marathons every year in different cities.

Is the NY Marathon a project? Maybe it is more than one project, each having an own objective and goal.

**Focus A:** To the organizers the NY Marathon is a project. The goal is to carry out the race and the objective is to keep a tradition alive. The project is made up of many different elements which need to be organized and accomplished before the race is off.

**Focus B:** It is also a project for the athletes participating in the marathon. The goal is to actually finish the race and the objective is to stay in shape or make good on a bet. The participants need to prepare, practice, acquire needed equipment and make sure to be on time when the race is on and run.

**Focus C:** The NY Marathon is even a project for the media which is covering the event. What are their goals and objectives?

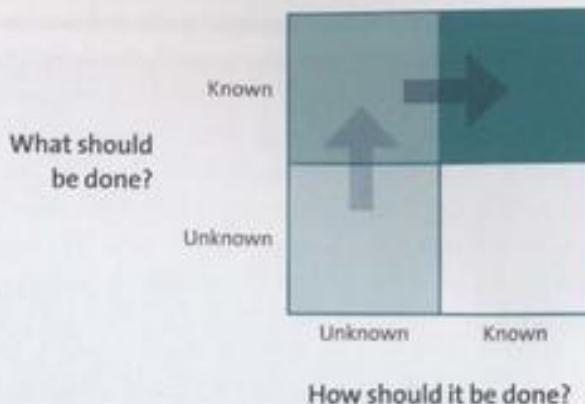
To run everything as a project would become quite tedious in the end. We all do things daily which can actually be defined as a project, but does not for that matter have to be a project. To get out of bed in the morning, go to work, do the grocery shopping and cook dinner is not a project; they are iterative events which are part of life in the same way much work done in a company/business is iterative. To shed light on what is part of a project and what is not, set up criteria to evaluate a project. Useful criteria might be:

- The assignment is measurable.
- There is a deadline for when the assignment should be finished.
- There is a well-defined client or sponsor.
- Special competence the company does not have is required.
- Many resources are required under a short period of time.
- The assignment is vast and/or complex.
- The assignment is of strategic importance.
- The assignment is outside of the company's ordinary business.

If abovementioned criteria are not applicable, choose own criteria which feels more appropriate. It is important, however, that it is obvious to everyone what exactly is needed to consider an assignment a project, to avoid misunderstanding.

## Project Initiation

Project can be initiated for many reasons; a problem someone wants solved, goods or services to be developed or a request to achieve effectiveness in work processes in a business. In principle, it could be anything which needs to be executed within a given timeframe. Common for all projects is that they should satisfy a need with someone, and should be suitable to carry out by help of a project method.



Projects which are well-defined on what should be done and how it should be done are easy to plan. Those projects are found in the upper right square of the matrix above. But if it is only known what to do, but not how to do it, it is imperative to choose a solution and a methodology which meet the goal first before it is possible to plan and execute the project. Movement in the matrix is therefore from the left to the right.

For projects where both "what" and "how" are unknown you must start by finding out what is needed to satisfy the project objectives. These projects are found in the lower left square of the matrix and have to move into the upper half where "what" is known, before appropriate project methodology can be decided upon.

There are different ways of initiating a project. It is whilst doing the preparing work that the project's goal is defined and determined and guidelines for project work is agreed upon. Most businesses with lots of project work experience have routines for this which might be a part of a quality system, or managed by a project model. The foundation for the project is laid during the initiation process. This is where the project is objectively scrutinized the first time to determine whether there are prerequisites to actually launch the project.

My colleagues and I have often recommended clients to refrain from starting projects, and instead recommended a thorough pre-study. This has not always been popular, but I am convinced

it has saved a lot of money for the clients. We have found it very useful to ask five simple questions, based upon the classic five rhetorical keywords.

- Who is the sponsor and who is the client?
- Why should this assignment be carried out?
- What should be done?
- When should the assignment be completed?
- How will the assignment be carried out?

The answers to these questions will decide if there are prerequisites to initiate a project. The flow-chart on the next page are directly connected to the five keywords. This can be used as a checklist during initiation, and even further along in the project work. The initiation process is often treated with negligence. Projects are embarked upon without clear and concise goals, and with a vague picture of the objective. The sponsor might not know exactly what he wants; only that he wants something to happen.

The "to do mentality" is very dominating within many organizations and companies. They do not realize the importance of setting aside time and money on a pre-study. To initiate quickly also signalizes high productivity, which sometimes lulls the company management and other stakeholders into a false sense of security.

## BACKGROUND, OBJECTIVE AND GOAL

Rarely a project arises out of nothing. There is always a reason a project is initialized, a historical perspective as to why change is needed. One might say that all projects are change projects and that they are links in a greater change cycle. Development projects develop new products to replace old or to satisfy needs which have previously not been met. Business projects define and build new organizational structures and develop new work methods in order to increase efficiency. Campaigns and intro-

roducing new products are projects which *objectives* are to make these known with new or existing customer groups. These are examples of projects which objectives are to create something new and thus leading to change. The project's current situation is defined by results and occurrences which have happened in the past. It is from this background, which is the base of the project, objective and goal originates.

### Background Description

It is advisable to include any connections to related projects in the *background description*, preferably using illustrations. The project might be one link in a chain of events much in the same way as the phases are links in the project's flow.

I recommend being relatively thorough when describing a project's background. There is, however, no need for a background description in measurable terms, since this will be done when handling objective and goal, and in the requirement specification. Do not forget that a reader should be able to comprehend all from start to finish, i.e. the connection to the goal and the business value for the client.

► Check list during project initiation process.

Idea/Assignment	Clarifying	Solutions/ Strategy/Analysis	Planning	Execution	Closure
What is the problem?	Current situation?	Which solutions are found?	What should be done?	How should we do it?	Who do we hand over to?
Who has a problem?	Dream-scenario?	Which solution is the best?	In which order?	How to follow up?	What remains?
Where is it?	What is influencing?	What jeopardizes execution?	Competencies needed?	Who/what do we support?	Next step?
Why?	Who influences/is being influenced?	When and for how long?	Who has it?	How to handle changes and revisions?	How to evaluate?
Is there a need to solve it?		Quality?	Critical goals?		
Connected to company strategy?	Financing ready?	Available resources?	How much does it cost?		

SOURCE: ACO CONCERN AB

### Project Boundaries

Limitations consist of everything from producing a prototype for evaluation in a development project, to regional limitations concerning implementation of a new organization within a large corporation.

It is obvious that it is important to keep track of and document what the project should do, but what is equally important is to specify what the project should not do. This is perhaps not as obvious. It is desirable that the project's limitations are decided and specified in the project's documentation to avoid misunderstandings on what should be delivered. The objective is to avoid false expectations among the different stakeholders.

### The Objective – Why is the Project Needed?

Regardless of whether the goal is described thoroughly or not, an objective has always been established. The objective is the same as the effect the project is expected to generate, i.e. why it is important to carry out the project. Without the knowledge of the objective it will be difficult to motivate the project group and other stakeholders.

When the objective is known, it is possible to assess the goal and analyze the assignment. If the project evaluation finds that the wanted effect is not generated, the project should go back to the sponsor for reevaluation of the problem description and reevaluation of the project and its goal. Sometimes a study should be completed to produce additional facts to add to the foundation. One and the same objective can be achieved in several projects. E.g. a company's profitability can be increased by either increasing revenues or decreasing costs. Different projects with entirely different goals can cause these effects.

This can e.g. be reached by developing new products which yield greater margins than the old, carry out a marketing campaign to attract more customers, or make work processes more efficient. These are just a few examples of projects which can all have the same purpose.

## GOAL SETTINGS EXAMPLES

*"To have built a bridge over the river five days from construction start"*

*"To have charted medication use in pensioners at retirement home"*

*"To have installed and launched Microsoft Project by the end of the fourth quarter of 2009, and have trained all staff in IT department"*

*"To have carried out a movie competition in Super-8 format"*

*"To have built 600 small houses for a maximum of € 2000 per m<sup>2</sup> in Brussels"*

### S.M.A.R.T

- Specific – the goal should be indisputably described and unique for this project.
- Measurable – it should be possible to answer YES or NO if the goal has been reached.
- Accepted – the goal should be established with both project group members and users.
- Realizable – the goal should be realizable with the resources made available.
- Timed – the goal should be obtained at a given time.

Already in this early phase the first evaluation of the project is being done. Is the idea so sound that it is worth spending resources and money on it, or not? Someone has to do the work and someone has to pay for it. A good way of evaluating whether the scope statement is viable is to do the SMART test. If the goal is specific, measurable, accepted, realizable and timed, then it works as a project goal.



## Place Requirements on the Sponsor

According to a survey carried out by a Swedish magazine, employees in Swedish companies feel that a manager's most important job is to guide and determine goals. After that follows inspiration, while coordination and delegation of duties and tasks are found further down on the list. Yet the impression amongst the employees is that managers do not set precise and unambiguous goals. All of 60 percent of the managers fail completely, while a quarter of them sometimes succeed. Only 15 percent of the managers' performance is accepted by their employees.

No wonder projects have a tendency to get in trouble. These Swedish circumstances are probably not unique. The numbers coincide with results from other surveys which have analyzed reasons for why projects fail. Ambiguous goals and project owners who lack in responsibility are always on the top of the list.

## THE SPONSOR'S REQUEST

### Request

A project is often initiated through a request, which can be conveyed in many different ways. A request can be anything from a direct order placement, to a more vaguely expressed wish for help solving a problem.

### Project Charter

Whatever the project should deliver will meet a need, internally within the company or with a sponsor, alternatively with the client's customers. What the sponsor wants is usually described in a *project charter*. This is where the background, goal and objective is clarified and where it is clearly stated who the sponsor and client is, and when the project should be executed. It is not unusual to specify how much money the project has been allocated if it is an internal project.



Project name	Four stars		
Background (original idea)	<p>Mauritius has always been an exclusive tourist destination, thanks to the fact that there are no package tours available; where air transport and accommodation are pre-arranged. This is a destination which has attracted two types of travelers namely the very rich who are prepared to pay for the luxury offered on the all-inclusive resorts, and the budget travelers who have themselves found and booked accommodation at the smaller and cheaper hotels, usually family-owned.</p> <p>Recently the local authorities have opened up for package tour operators which is a threat to the smaller and less fancy family-owned hotels, now that their target group can purchase complete holiday package tours with both airfare and accommodation included.</p> <p>It will no longer be financially attractive to book and pay for airfare and accommodation separately. The family-owned smaller hotels are not attractive for the tour operators due to their size and low standard.</p> <p>Hotel Lataniers Blues is one of these smaller family-owned hotels that understand the need to change their approach to stay in the business.</p>		
Sponsor	Mgr and owner of Hotel Les Lataniers Blues, Mauritius		
End users	Management, staff and guests		
Business impact goal – Project objective	To have the hotel classified as a four star hotel to become an attractive partner for the international tour operators.		
Project goal – end result of the project	To have renovated all rooms and expanded the business whilst containing the intimate atmosphere.		
Timeframe for the execution of the project	START February 2009	FINISH October 2009	
Priority of what is most important	Time 30 %	Resources 20 %	Quality 50 %
Budget	Rs 2 000 000		
Documentation received by	Date 2008-10-30		

There are many different names for project charter e.g. project directive, *project specification* or project definition. If you are undecided on which name to use it is recommendable to study PMI Glossary. This goes for all the project terms and expressions in this book. They can all have different names in other books and methodologies.

The project charter can be complemented with a *requirement specification* where requirements on the project are elucidated. It is a prerequisite that the requirements are known and documented when the project is initiated, which is seldom the case. It is the project owner's responsibility to see to it that a project charter is written. Of course this can take place together with the intended project manager. Wishes and suggestions on project solutions are discussed until a mutually accepted description of the assignment has been produced. A request for proposal in connection with a public tender can also be viewed as a project charter.

### Request for Proposal

Government authorities and publicly owned companies and organizations are required to follow strict laws and regulations when issuing a bid to tender where the financial scope exceeds a certain level. This is to ensure best possible and fair competition. A public *procurement* process is initiated by a request for proposal. The procurement process is often strictly specified and regulated in the request for proposal. It is important to thoroughly understand what is requested, when the proposal should be submitted and how it is evaluated.

There are companies which continuously monitor all public tenders on the market and some of these services are tailored for a certain line of business or region. Time can be saved by matching tenders with the expertise you offer.

Both domestically and internationally there are laws and regulations which determine when an invitation to a public tender must be addressed to all or only to a specific selection of contractors, in a simplified process. It is important to know the laws and regulations of your local market.



## THE CONTRACTOR'S PROPOSAL

Never propose anything which you suspect the client does not actually need, just because you want the business. By misleading someone like that you are most likely to be hit in the head with it when the project does not reach the expected results. It is also irresponsible to accept a project which is clearly outside your competence, or demands resources which are already allocated elsewhere.

### Proposal

A proposal is a legally binding document. It is very seldom any of these are accepted without negotiating the terms and making appropriate adjustments.

The proposal is a counter offer which makes up the foundation during upcoming negotiations. It is imperative that the client accepts a solution that suits both the client and the contractor. The contents in the project charter can be considered a preliminary list of requirements. The companies who intend to compete for a contract will evaluate which items they are able to handle and in which way.

This is then documented in a counter offer which is presented to the potential client. The contractor is at liberty to ignore requirement specifications and instead offer a solution which yields other advantages which suit his competence and experience better, while encountering the risk of not getting the assignment. The contractor's opposing offer can often lead to a better solution than the one specified in the request for proposal, especially if the client is willing to negotiate the contents. It is in this process between the client and contractor the terms and conditions for the project are established. The client always has the final word and decides which terms to pertain to.

Make sure to fully uncover the needs of the client. There could be a difference between what the client is asking for and what the client actually needs. This may sound strange, but unfortunately this is often a problem when the project involves complicated technical products, e.g. IT projects. Purchasing is difficult for a person who is not technically familiar with the subject, all

the while the contractor, who of course knows his products and services, does not always understand the client's needs. There are many grounds for misunderstandings here, which in a worst case scenario can result in purchasing a system which does not meet the needs.

Long-term relations are always built on honesty and frankness. It pays to be honest and not fall for the temptation to try to secure the contract if you have no resources or time available. Declining a request for proposal might generate more respect, and thereby increase the chance to participate on other occasions.

## AGREEMENT

Projects place demands on both parts. To succeed and fulfill the requirements a consideration is often demanded from the client. If the project is meant to be executed in close cooperation with the client it is important to agree exactly on how this cooperation is to work. The requirements placed on the client vary depending on the characteristics of the project of course. This could e.g. be resources and information that the client has to supply to the project.

To discuss and agree upon, before project start, how to handle unforeseen events caused by the client or a third party will simplify execution of the project. It is important to establish routines and reserve funds to deal with the consequences, not to decide in detail what actually has to be done and how.

The unforeseen is exactly what the word spells; unforeseen, and cannot be planned. Try to negotiate a budget and time reserve and make a contingency plan for the extra work the project can be struck by because of unforeseen events which are out of your control.

When the client and the contractor have agreed on what needs to be accomplished it is time to concretize this in a contract; this is subsequently the foundation of the project.



- Agreement components which help manage the project work:
- Project charter – defines the client's needs
  - Requirement specification – defines what the project should deliver
  - Project scope statement – defines what should be done during pre-study and planning
  - Project plan – regulates execution and management of the project
  - Resource agreement – regulates conditions for resources
  - Project budget – detailed preliminary costs



## Pre-study

It is advisable to envision the project before actually starting on the planning and execution. Too often projects are started without the fundamental analysis of the needs and suitabilities in the selected solution.

Always begin the project work by doing a pre-study with the purpose of diminishing the uncertainties around the project. Questions which need answering might be: Is the problem situation true to reality? Will the project deliver wanted effects? Do we have the proper prerequisites?

## PROJECT OR NOT?

A THOROUGH pre-study can sometimes result in a project being terminated before it has even started. To terminate a project prematurely is not necessarily a failure, but on the contrary something which should occur more often than it does. Way too many projects without the right prerequisites are started, and way too few are terminated.

The pre-study findings should be gathered in a document, which in project terminology might be called a pre-study report. It is common that the document also contains an outline of the project plan. To be able to show a plan early on will facilitate the establishment of the project.

### Examples of activities in the pre-study phase:

- Identify scope
- Analyze current situation
- Structure project work
- Identify stakeholders
- Estimate business impact
- Solution selection process
- Identify requirements
- Compile an outline of the execution plan

### Pre-study Work

To prepare a project by analyzing and evaluating the foundation for the assignment is an important part of the project manager's tasks, but that does not mean he or she does this singlehandedly. The term project manager actually does involve management, just as the word suggests.

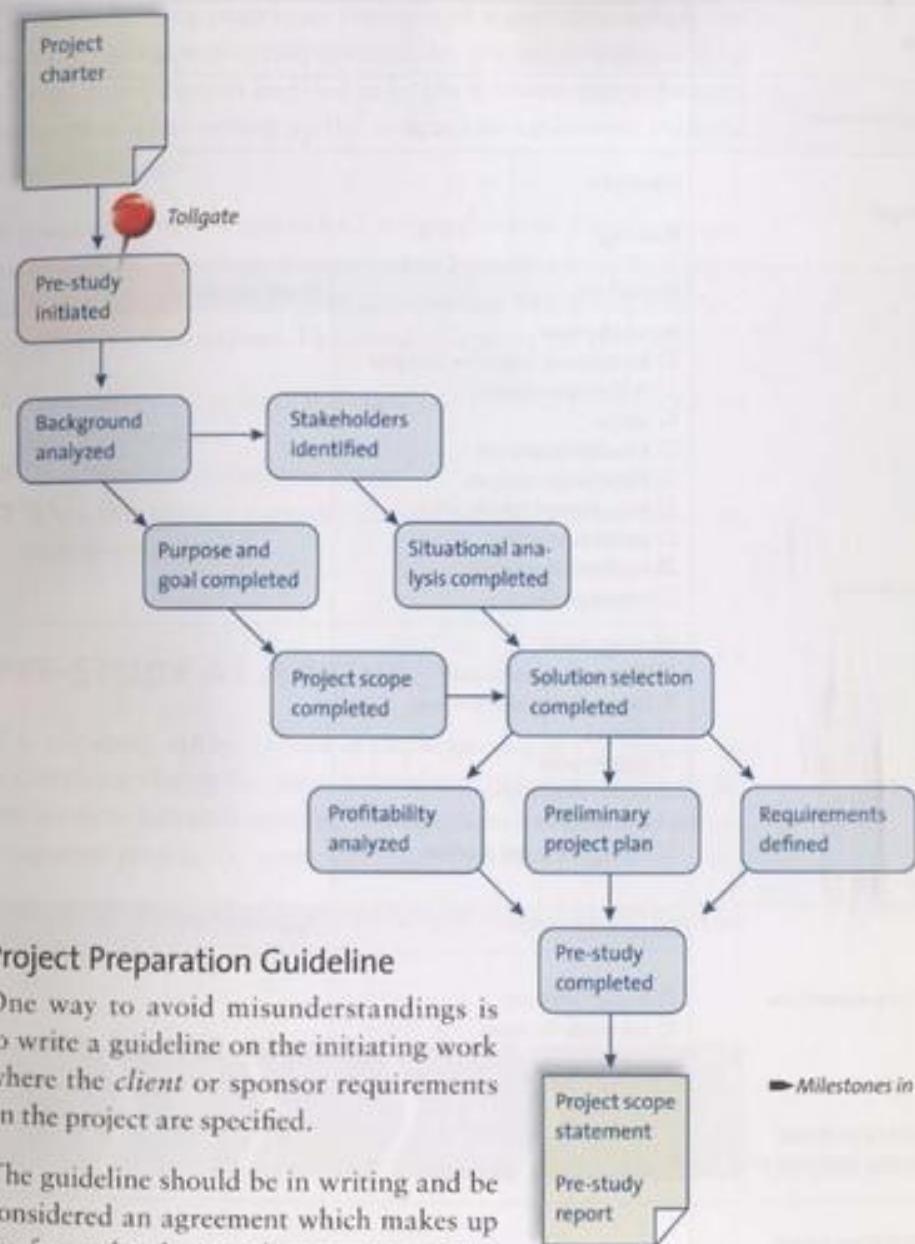
This requires the project manager to see to it that the preparations are carried out in such a way that a professional decision analysis is produced.

### Planning the Preparations

Just as the project needs planning, the work around the pre-study needs planning. Responsibility rests on the project manager, but even to a degree on the company management or nearest manager. Their responsibility is to allocate time and resources for the project manager to carry out the preparations.

This phase can be structured through guidelines in which goal, time and resources are determined. If the company has a project methodology it will most likely be specified in this what to do during the pre-study phase and sometimes even how.

The elements which are part of the pre-study are in principle the same independently of what kind of project is run. It is therefore fine to describe the preparatory phase of the project as a process containing a number of milestones.



### Project Preparation Guideline

One way to avoid misunderstandings is to write a guideline on the initiating work where the *client* or sponsor requirements on the project are specified.

The guideline should be in writing and be considered an agreement which makes up the frame for the initial preparations. The nature of the guideline can be seen as a less comprehensive project charter, which purpose is to manage the work during the initiation process.

Project name		
Sponsor/Project owner		
Project manager	Pre-study: Planning:	
	To produce	Already resolved
Result from planning	<p><i>Pre-study phase</i></p> <input type="checkbox"/> Background, objective and goal <input type="checkbox"/> Project boundaries <input type="checkbox"/> Scope <input type="checkbox"/> Situational analysis <input type="checkbox"/> Stakeholder analysis <input type="checkbox"/> Requirement specification <input type="checkbox"/> Solution selection <input type="checkbox"/> Profitability analysis <input type="checkbox"/> Milestone chart	
	<p><i>Planning phase</i></p> <input type="checkbox"/> Time and resource plan <input type="checkbox"/> Organization and staffing <input type="checkbox"/> Budget <input type="checkbox"/> Quality plan <input type="checkbox"/> Information plan <input type="checkbox"/> Risk analysis <input type="checkbox"/> Changes request routines	
Timeframe for preparations	Milestones	Time
	<input type="checkbox"/> Project initiated <input type="checkbox"/> Pre-study finalized <input type="checkbox"/> Planning finalized	
Organization and resource allocation during initiation phase		
Budget for initiation phase		
Guideline accepted by		Date
Appendix		

On the adjoining page is an example of a guideline which can be used during project preparations, i.e. pre-study and planning phases. It is meant to be filled in by the sponsor and to be used as support when setting up the contract or agreement with the project manager.

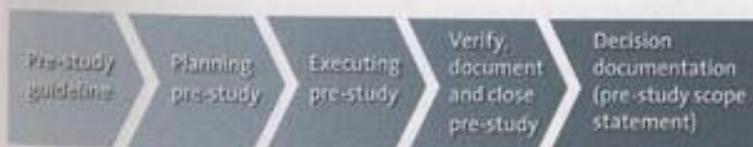
It is especially important to have a signed contract on the project preparations if they are anticipated to be substantial. Staffing is an important part which should be settled in the beginning of the project preparations. This involves among other things:

- How much the project manager can influence the choice of human resources.
- Who determines this and when.
- What the project manager should consider when selecting human resources.

## PRE-STUDY AS A PROJECT

The pre-study can be a phase in the beginning of the project, or a sub-phase during the preparations and planning work. If the pre-study is demanding it might be appropriate to carry it out as a separate project, i.e. complete a separate analysis.

Obviously, analysis projects also have planning, execution and closure phases like all other projects.



► General analysis pre-study process

There is no guarantee that a pre-study will lead to a project being started. The analysis and result of this might very well show that it is not recommendable to go ahead, e.g. because the prerequisites are found dismal, or that the analysis of the business impact show the costs exceed the projected benefits.

Regardless whether it is included as a part of the project or not, the pre-study is vital to ensure that the project is started with the best of prerequisites.

## THE PROJECT'S SCOPE

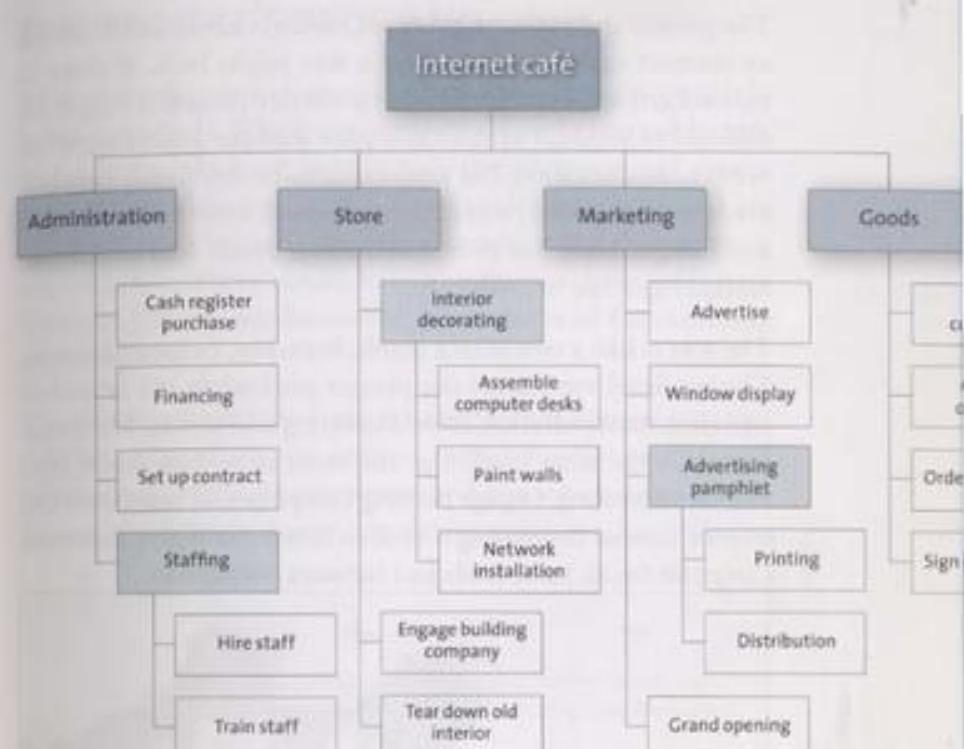
When objective and goal has been formulated and accepted by the project group and approved by the sponsor is it time to evaluate the size of the project's scope. An efficient method for this is structuring the work which has to be done in the project. This structuring makes up the foundation for the pre-study and in due course the planning. The project structuring process has two objectives; to visualize a common view on the project's scope, and to establish a basis for making realistic estimates on duration and costs. If this is handled in a negligent way the risk is great that something imperative to the project will be missed, which undoubtedly will bring with it changes and additional work during the project. This spoils the work rhythm which in turn delays the project and adds to the costs.

I have seen too many projects where the project manager has gone straight from initiation to activity planning, and created a fancy, but useless *schedule*.

If the project is similar to a previously executed project, or is of such small scale that it is easy to have an outline of it, it is possible to skip the structuring. A calculated and sometimes great risk is taken then.

During the structuring process the project goals are broken down into smaller parts which can be illustrated in a hierarchical structure. This division can derive from sub-deliveries, areas of responsibilities, target groups, components or anything which is an important part of the project.

The number of levels in the structure is determined by the need for detailed descriptions of the contents in the separate parts of the project. If it is unclear what to do in some part of the project, it is motivated to break this down to a lower level. The lowest level in a *work breakdown structure*, WBS, is called a *work package*.



A work package might consist of one or several activities. Observe that the work breakdown structure does not show dependencies or chronological order between different activities, but only what has to be accomplished in the project.

### Work Breakdown Structure

To carry out a project requires that everything runs smoothly. A well composed WBS will facilitate the work of identifying milestones and planning activities which in turn will make the next steps in the project's preparations more straightforward. The WBS is also a good starting point when it is time to appoint shared responsibilities in the project. The different branches represent different sub-areas which probably demand different competence.

The project drawn up in the WBS, which is about establishing an internet café, illustrates how a WBS might look. If there is no background experience from a similar project it might be difficult to produce an effective plan without analyzing what needs to be done first. The store needs to be renovated, network needs to be installed, computer equipment needs to be selected and bought, staff has to be hired and trained. Add to this the marketing of the internet café.

The WBS is like a tree with a trunk, branches, twigs and leaves. The top level represents the project goal while the branches represent Administration, Store, Marketing and Goods. The twigs represent the next level; e.g. the store is broken down into Interior Decorating, Engage Building Company and Tear Down Old Interior. Interior Decorating is broken down again into Assemble Computer Desks, Paint Walls and Network Installation.



## BRAINSTORMING

### WBS

Establish a group of 2-4 individuals, give everyone post-it notes and large-tip markers. Let each one of them write down their suggestions on what needs to be done in the project, without conferring with the others in the group. Put all the notes up on a board.

Appoint a chairman who will manage the sorting of the notes. Remove any copies and group those that go together. After a while a number of obvious primary groups are recognized. When all agree on what feels right, the primary groups are named and a hierarchical structure is produced. Tie the branches and twigs together by drawing lines between them.

To leave no room for doubt a WBS can be made more explicit by using colored notes where the various colors represent the different primary groups. Leave the result on the wall to remind the group what they agreed upon, regardless of a clean copy being produced and distributed electronically.

## THE PROJECT'S PROS AND CONS

What does the present situation look like when the project is being launched? Which are the internal and external factors and what might have an effect on the planning and execution? External factors, being opportunities and threats, are those who are positioned outside the project and the executing organization. These can be hard to influence. Internal factors are strengths and weaknesses in the project and the executing organization.

The factors which arise from the analysis are divided into two columns, one which has positive factors for the project, and which might facilitate execution, and one which has negative factors which might complicate during execution.

	<b>+</b> Factors which facilitate the project	<b>-</b> Factors which might complicate the project
<i>Within the project and the executing organization</i>	<i>Strengths</i>	<i>Weaknesses</i>
<i>Outside the project and the executing organization</i>	<i>Opportunities</i>	<i>Threats</i>

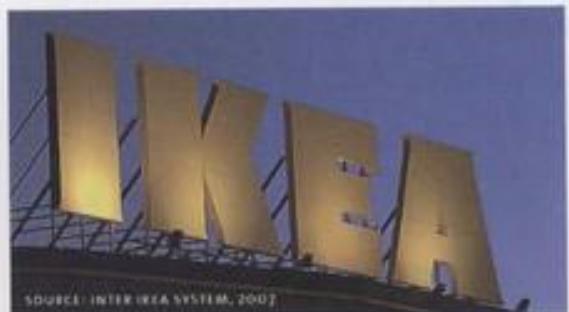
► Plotting prerequisites  
the SWOT matrix

Remember that the analysis is an illustration of what the current situation is when the project is started, and not speculation on how it is believed to look like when the project is being executed. It is easy to make the mistake to see possibilities which are actually positive effects of the project's result, when the project is already executed. A given factor must exist when executing the project to be found in the analysis.

## SWOT Analysis

The situational analysis is usually called the *SWOT Analysis*, where the abbreviations are Strengths, Weaknesses, Opportunities and Threats. This is a very useful analysis which is usually an important part of companies' business and marketing plans.

In projects it can, however, be difficult to separate what is part of the project internally, respectively, externally. It does not matter greatly if it proves difficult to separate possibilities and strengths, as long as they are positive factors in the project. Same goes for weaknesses and threats. Do not waste unnecessary time on separating what belong to the project's internal versus external world.



SOURCE: INTER-IKEA SYSTEM, 2007

Inter-IKEA in the Netherlands, which manages the IKEA concept, has developed the SWOT one step further, bringing it to a process in six phases.

1. Chart your internal Capabilities (Strengths and Weaknesses) and your external Challenges (Opportunities and Threats).
2. Rank all points in each "box" in the SWOT top to bottom, the most important first.
3. Identify advantages, defense, vulnerabilities and temptations by matching strengths and weaknesses with opportunities and threats.

**Advantages** = Strengths + Opportunities

**Defense** = Strengths + Threats

**Vulnerability** = Weaknesses + Threats

**Temptation** = Weaknesses + Opportunities

4. Chart problems and important questions.
5. Describe current situation briefly.
6. Focus by formulating a couple of SMART goals.

When the analysis is done conclusions are made. It is about matching opportunities and threats with its strengths and weaknesses and identifying gaps. A matching is e.g. when an external opportunity is met by an internal strength, while a gap is e.g. an opportunity we cannot utilize because it is missing the necessary strength. External threats should be met in the same way by internal strengths; otherwise they are risk factors in the project.

The analysis of the present situation is presented in the pre-study report. This is called a *situational analysis* and is an important part of the *decision documentation*. The purpose is to present a picture of the prerequisites before commencing planning phase. The idea is to choose solutions and plan for the execution phase so that matches are taken advantage of and gaps are eliminated or avoided. An identified gap can e.g. show the need to hire specific competence or train someone in the project group.

Facilitates	Obstructs
S1 Project financial sound	
S2 Strong motivation in project group	W1 Unclear technical solution
S3 Established project model	
O1 Top priority issue with customers	T1 New technique teething troubles
O2 Thorough knowledge on mobile services within the company	T2 Mobile standards not supported completely cell phone models
O3 High IT competence within organization	T3 Immature market for mobile services
	T4 Minimal technical knowledge with users
Conclusions and actions	Handled in ...
S2 + O2	<p>Mobile portals are considered exciting and create motivation. The thorough knowledge on mobile services and IT within the organization should be utilized.</p> <p>Also map out which cell phones support the selected solution.</p>
S3 + T1	By using the organization's project methodology, the indefinable technical solution can be compensated by structured work method.
S2 + T1 + T2	Solution based on new technique and lack of complete standards which might create problems. It can to a certain point be compensated through thorough testing.
S1 + T4	Demand for service developed might not be big enough.
	The selected solution therefore has to be conceived as easy to use by users.
W1 + T1 + T2	<p>Immature market, minimal technical knowledge with users, and the unclear technical solution might lead to exceeding schedule and budget.</p> <p>Can be compensated by whole area being top priority. Follow development on the market.</p>
W1 + O1	<p>Mobile portals being top priority issue. Unclear technical solution might lead to wrong solution.</p> <p>Follow the development on the market.</p>

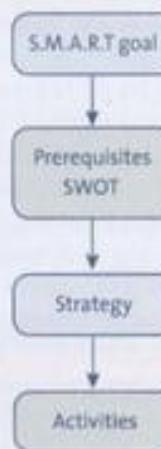
**Marketing plan**

The situational analysis is an effective tool when emphasizing any advantages which should be utilized during the execution phase and at the same time become aware of the disadvantages which could obstruct the project from reaching its goal.

This analysis is essential when planning the activities and resources needed, creating the communication and organization plans, allocating human resources and performing the risk analysis.

The SWOT analysis is the foundation upon which all businesses are planned. Both business and marketing plans are initiated by way of a situational analysis where prerequisites in the external and internal surroundings are mapped and analyzed. When the current situation has been established it is possible to formulate SMART goals for the business, and through this attain a strategy and tactics adapted to given circumstances.

A project plan is actually rather similar to a marketing plan. The biggest difference is that the goal has already been defined by the sponsor from the onset in the project plan, and that the SWOT is used to analyze the prerequisites needed to reach this goal. A strategy is in effect choosing a solution and a roadmap which are thereafter broken down into activities.

**Project plan**

An external opportunity which is supported by an internal strength should be taken advantage of during the planning phase. All conclusions become entry points into the activity plan. Another opportunity might lack a corresponding strength.

In this case a possible internal weakness has been identified which can be eliminated e.g. by strengthening the project organization. Through this, this conclusion is now linked to the organization. Negative factors which cannot be eliminated will be transferred into the risk analysis.

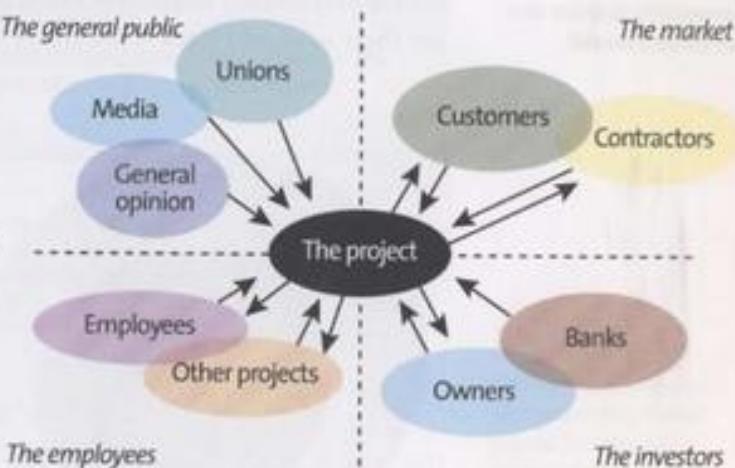
**STAKEHOLDERS**

Stakeholders are individuals who are somehow influenced by or are influencing the project. Some belong to both categories. Together with the SWOT analysis the *stakeholder analysis* makes up the foundation of the situational analysis. To recognize the project's various stakeholders and their respective expectations are of vital importance for the survival of the project manager.

So who are the stakeholders? They can be anybody who is needed to execute the project. They can also be those who will be affected by the project, or they can be individuals who will control the project manager and/or the project.

**Stakeholder examples:**

- Client
- Sponsor
- Project group
- Steering committee
- Company management
- Customers
- Contractors
- Investors
- Other projects
- Society
- Opinion groups
- Internal employees executing the project
- Unions



→ Stakeholder analysis where the stakeholders' importance is visualized by the size of the circles. How they affect or are affected by the project is visualized with the arrows.

In the stakeholder analysis the various stakeholders are mapped out and an evaluation is done on how to manage each one of them. When it comes to an important stakeholder it is essential that this individual knows that all needs and viewpoints are well taken care of in the project.



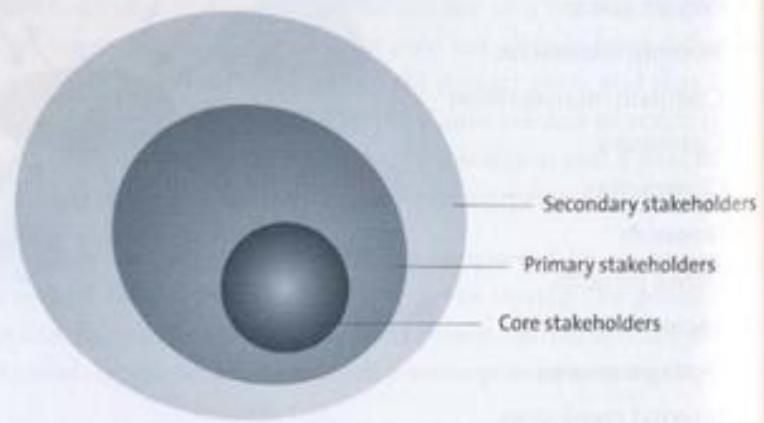
*Balance of interests – all stakeholders have their own goals which influence the reward they want from contributing to the project. It is the project manager's responsibility to ensure that everybody is pleased.*

## Core, Primary and Secondary Stakeholders

All stakeholders do not require to be considered equally, and they are not equally important to the project. Because of this it might be recommendable to place the stakeholders in different categories, e.g. *core, primary* and *secondary stakeholders*, alternatively A, B and C stakeholders.

The importance of stakeholders is often underestimated. Compile a chart of the stakeholder's individual goals; professional as well as personal.

To identify and categorize the stakeholders will facilitate how to deal with them later on. It is obvious that the project's stakeholders are individually important to the project, but how important are their roles and what is necessary to keep them content?



**Core stakeholders** – stakeholders who are prime movers and/or decision-makers.

**Primary stakeholders** – stakeholders who are particularly affected by, and would like to influence, the project.

**Secondary stakeholders** – stakeholders with a relatively low interest and as such will probably not influence the project.

## The Stakeholders' Subjective Opinion

For some stakeholders it is sometimes more important how a project manager is performing, than what he or she is actually producing. The project manager is likely to be assessed on a number of "soft" criteria. Try to learn what matters the most to each stakeholder.

<b>Empathy</b>	Stakeholder need to feel that the project leader see and feel the world from their point of view.
<b>Reliability</b>	Stakeholders need to feel that the project manager will do what he/she promises.
<b>Faultlessness</b>	Small errors, even typing mistakes can upset some stakeholders. Stakeholders rely on the project manager.
<b>Honesty</b>	Stakeholders want to feel comfortable about the process. This lessens their need to control the project leader's actions.
<b>Humor</b>	Most people like to have fun, it adds to the sense of achievement.
<b>Aesthetics</b>	Stakeholders generally like to be pleased by the appearance of a project plan which shows the entirety clearly and concisely, as opposed to a cluttered and untidy one.

SOURCE: THE PROJECT LEADER'S SECRET HANDBOOK, EDDIE O'BRIEN

## Aligned Stakeholder Perception

It is necessary to ensure that the project's most important stakeholders have expectations on par with the project's goal. It might be necessary to prioritize between different stakeholders and their goals.

It is difficult to please everybody. Almost all projects are limited by budget and costs. Not all needs can be satisfied by a project.

If it seems difficult to navigate aptly amongst the stakeholders' demands and requirements, make a "secret" stakeholder analysis. This should be locked away in a drawer or password protected in a computer.

*"People forget what you said, people forget what you did, but they will remember how you made them feel."*

- Who wants you to succeed?
- Who wants you to fail?
- Who supports you visibly?
- Who supports you invisibly?
- Whose success affects you?
- Whose success do you affect?
- Who benefits if the project is executed?
- Who does it damage if the project is executed?
- Who can you do without?
- Who are you dependent on?

SOURCE: THE PROJECTLEADERS SECRET HANDBOOK, EDGIE OBENG

### Keeping Track of the Stakeholders

Have a habit of checking up on the stakeholders during the execution phase, as some are more critical to both progress and success. It is most likely important to keep some stakeholders in the heat more than others. A stakeholder who is involved and interested from start can turn around if he or she feels neglected or badly treated. An unsupportive stakeholder can be a huge liability in the project.

Some stakeholders can take over a project to such an extent that the result is influenced by their preponderance and enthusiasm.

### BUSINESS VALUE

It is very beneficial to analyze the business value before a project is launched. The first question to ask is this: What kind of value does the project generate and is the project's expected end result within the organization's business goal and strategies? The question can usually be answered in financial terms, but sometimes even in other ways.

The second half of the question might seem simple to answer. If the project's goal is aligned with the company's vision and strategy, proceed without caution, while projects with a deviating direction should be avoided. But it does not necessarily have to be this way.

It can be advantageous to work in projects when trying out new ideas or attempting to enter new markets. The purpose is to deliberately expand the business and further develop the vision and goal even though the particular project may not be profitable.



It can be justified to execute projects which do not support the business goals, if they are considered to generate experience or new customers which are needed to develop the company.

Common for all businesses, corporations and organizations is limited resources, even for the biggest players. Projects are therefore competing for the resources with the line organization and other projects.

It is the senior management's responsibility to prioritize projects and allocate resources. The project manager's responsibility is to execute the project as he or she best can with the prerequisites given.

### Financial Analysis

The purpose of the financial analysis is to commercially determine if the project idea is viable. It is also used to estimate the financial returns on the project, or rather the end result of the project.

The potential returns, alternatively cost savings, have to cover the cost of carrying out the project and also the upcoming continuous cost of the production and operation of the system or organization which the project is meant to deliver.

**Basic PENG model**  
A PENG analysis usually takes two to three days to complete. It is important to secure that the individuals carrying out the analysis have thorough knowledge about the project as well as the organization utilizing the result.

#### Preparations

1. Determine objective and goal
2. Create awareness and allocate resources
3. Decide limitations in the project
4. Describe the project

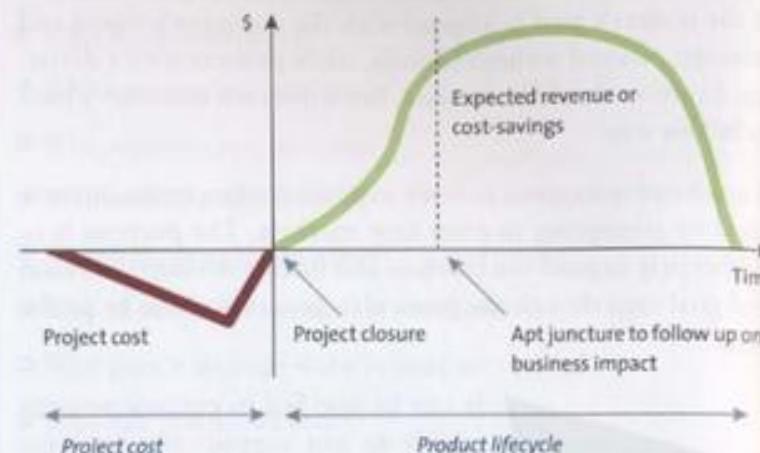
#### Benefit evaluation

5. Identify effects of benefits
6. Clarify links in an objective structure
7. Evaluate benefit effects
8. Define and evaluate the cost of the benefits

#### Validation and quality assurance

9. Define benefits and analyze obstructions
10. Calculate net benefits and determine responsibility for the impact realization

PENG is basically a ROI model (return on investment) which purpose is to show what is returned on an investment. Today, PENG is taught at many universities and colleges.

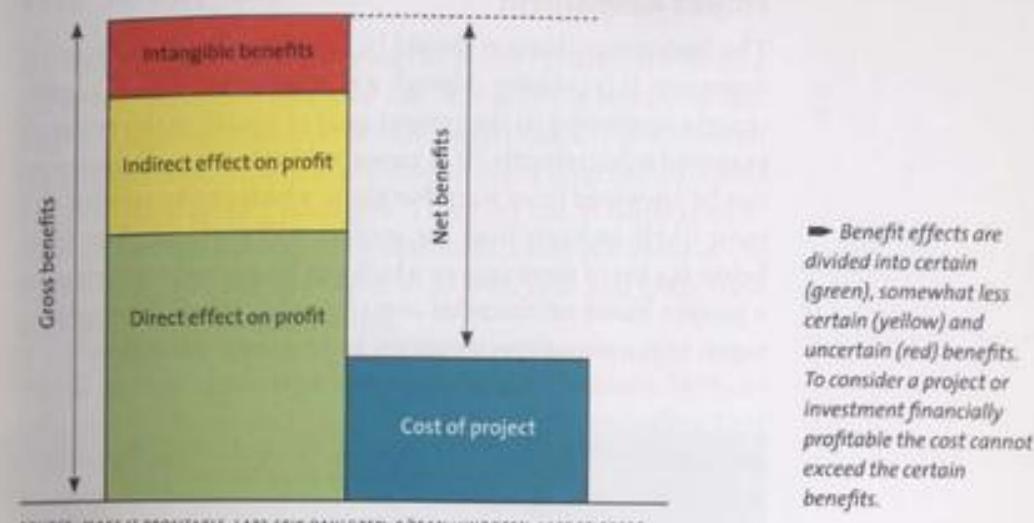


## PENG

Which effect will the project yield and which benefits does the result generate? PENG is a method to prognosticate the benefit effects an investment is meant to yield. PENG, which means coin in Swedish and is an acronym for prioritization according to business values, has been used for more than ten years to analyze various projects and investments; e.g. investments in business systems, fire alarms, workflow applications in health-care, company mergers and much more.

It will be possible to specify correct requirements and early on have an effect on the result by carrying out a PENG analysis in the pre-study. By focusing on the *benefit evaluation* at an earlier time in the process it will be easier to generate enthusiasm from both the management and the employees.

The result of a benefit evaluation gives an overview of which benefits are possible to generate in a business. Every single benefit represents an improvement goal. Even soft criteria can be analyzed with the PENG model.



SOURCE: MAKE IT PROFITABLE, LARS ERIC DAHSGREN, GÖRAN LUNDGREN, LARS STIGBERG

The total value of all identified benefits is called gross benefits, which equals the generated client benefits. The gross benefit must be higher than the total costs to generate profitability in the project, i.e. the sum of costs in planning and execution phase, implementation and possible cost of ownership costs which arise when the projects result is realized, e.g. in operations and maintenance.

A benefit can arise both internally and externally. Consider the fact that many benefits cannot necessarily be financially assessed. A wellbeing project at the company headquarters will not yield any financial effect until sick leave and employee turnover reduces, and thereby reducing the cost for temporary workers respectively new hires.

It is vital for the clients who solicit the project to know the operations to be able to evaluate the benefits. An investment can yield completely different effects depending on who is using the end result. The benefit values arise with the client when the project result is utilized.

*"An IT investment has zero value if it is not guaranteed that the benefits reach out in the organization."*

Sten Jacobson,  
IT-arkitekterna

## Project Assessment

The business evaluation should be done in other than financial terms too. It is possible through a number of hard and tangible criteria connected to the project goal to visualize the project's expected achievements. It is conceivable that not all questions can be answered from start, but those which can be tackled will most likely indicate how the project will perform. The table below is a list of some factors which can be used when estimating a project based on financial contributions, competitive advantages, requirement specifications and *business objectives*.

Financial contribution	How much does the project cost? External or internal money transfer? How much revenue will the project generate? Will the project generate money in itself, or does it rely on business activities? What is the impact of over spending?
Competitive advantages	When does the project need to be completed? What happens if it is late? What happens if it is early? Who is expected to receive the delivery? Is there a window of opportunity? Who or what is the window bounded by? Competitors? Legislation? Customers? Technology?
Requirement specification and business objectives	What are the specific requirements which the project must meet? How much can the project deviate from the specifications? What happens if the specifications are not met? What objectives are definitely not in the scope of the project? What objectives are definitely within the scope of the project?

## THE SOLUTION

It is easy to assume that knowing the project goal equals finding a solution effortlessly. If a goal can be reached in one particular way only and everyone has the same perception of the surrounding environment, we would not have so many disgruntled clients and frustrated project managers. There are just as many convictions and beliefs as there are individuals. Everyone looks at the surrounding environment with their own eyes and from their own perspective and experience.

We all have preconceived opinions and are therefore likely to only identify needs and problems we recognize ourselves. Our collective experiences affect our views on the environment around us. We have learnt through years of experience what works and what should be avoided. Yesterday's solutions do not always suit today's problems. And my interpretation of what my client is saying may not always be correct.

Sometimes clients and sponsors intentionally push a certain project solution by supplying limited information on background and objective. This is most likely not a conscious act, but due to lack of perspective. He or she is too entwined in the problem to appreciate alternative solutions. It would be valuable if the client's picture of reality was questioned and critically reviewed more often by a third party.



## EXAMPLE

A CEO sees his company's sales figures decline quarter after quarter. He does not know why this is happening, but his analysis of the situation is that the competitors are more successful. He has heard through the grapevine that the customers get on well with them. The mood around the office is not great either. Complaints are coming in on a regular basis from his employees. Some are of the opinion that the office needs a touch-up, others want to attend courses to improve their own competence. Several are complaining about their pay, which the CEO is unable to raise because of the business situation.

### Scenario A

The CEO is more and more convinced that the old and worn-out office is the reason for the decline in customers. He contacts an interior decorating company to ask them if they can help decorate the office space to attract more customers. A meeting is set up at the office.

### Scenario B

The CEO is certain the problem with the declining sales figures lie with the employees. If they attend a couple of courses and gain more competence they will be more positive, which in turn will rub off on the clients. It is time to make certain changes among the employees. He turns to an organizational consultant to get help in becoming more attractive in the eyes of the customers. It is agreed that they will meet in connection with the company kick-off.

### Solutions

Same problem and objective. Depending on how the CEO presents the problem and what the deliverer is told, they will most likely suggest two different solutions. The interior decorating company will most likely suggest an office make-over, while the consultant will focus on the employees and the organization's needs.

*How a person will interpret your question depends upon how you present that question.*

*To every question you can find a new answer!*

## Problem Solving

Solve a problem instead of acting on an encountered symptom. A large international industrial corporation use a method based on asking "why" a number of times. This brings them to the core or root cause of the perceived problem instead of fixing something which is just a symptom. "You need to remove the root cause and the specific problem you are dealing with goes away". This method saves a lot of time and money.

### *Why? Why? Why? How do I want this resolved?*

By using this method not only the goal but even the objective is scrutinized. The result will most likely be a solution the client will be satisfied with, even in a long-term perspective.

### Solution Selection – a Strategic Decision

To settle on a solution is a strategic decision. Most goals can be reached in several different ways, but one has to choose which direction to go before starting the execution phase. Just as producing the requirement specifications, the solution selection can be an activity within the framework of the pre-study.

The nature of the problem, the executing organization's competence and experience and technical prerequisites all need to be considered when carrying out the problem solution process.

The solution has to meet the requirements so that the project's goal and objective is reached. Generally one has to consider both product and project requirements.

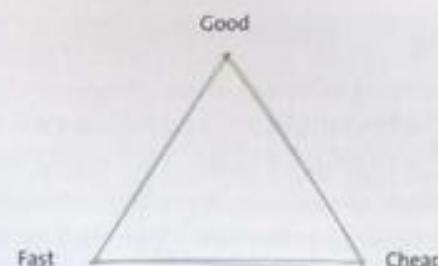
In many projects delivery time and project budget can kill a solution which actually would have been better than the one chosen. There are always pros and cons so it is therefore important that the project priorities are unambiguous.

The sponsor or client decides what is most important.

*"Strategy without tactics is the slowest route to success. Tactics without strategy is the noise before defeat." Zun Tsu*

*In a project the solution and the milestones represent the strategy while the project schedule describes the tactics.*

► Fast, cheap and good –  
Which is valid for the project?



In a project the terminology in the triangle represents product quality, calendar time and resources. Product quality equals the level of wanted ambition for the project, while the calendar time represents how long the project can run and the resources is represented in the shape of money, numbers or labor hours.

Product quality, calendar time and resources make up the *project management triangle*, also known as the *triple constraint*. One of these is always pre-dominant. Either it is the quality of the product, the cost for the resources or delivery time which is imperative to the project.

► The Project Management Triangle with the three controlling parameters  
– Product quality, calendar time and resources.



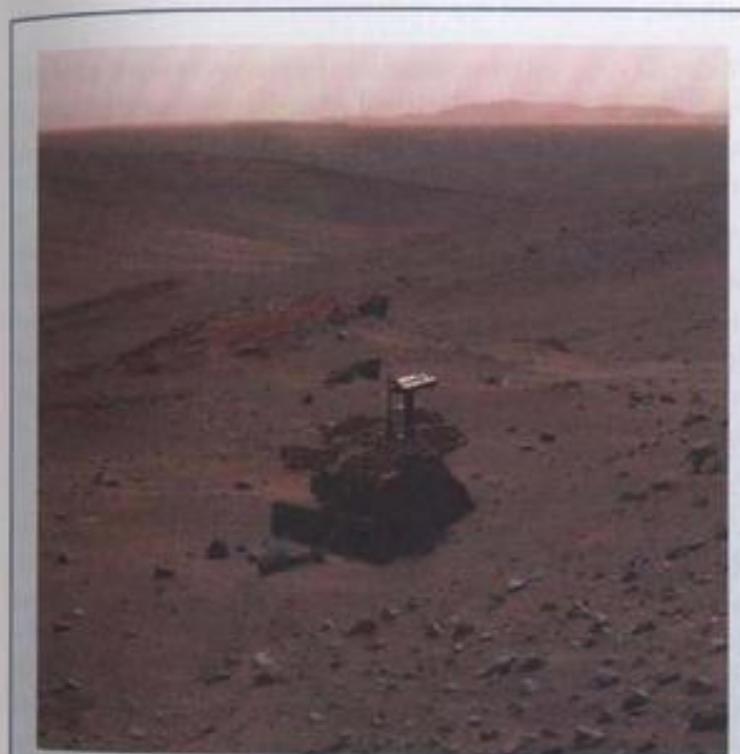
### Prioritizing

A project manager has to know which factor is most important in the project, and where it is possible to compromise if the project does not stick to the plan. One method to use is to rank the triple constraints by sharing 100% between:

Product quality ..... % Calendar time ..... % Resources ..... %

*Only one of these can be pre-dominant!*

If top priority lies with product quality it entails that the result, the product, is more important than delivery time and costs. If time is of essence it signifies that the project's end-date is most important. The result and the costs follow suit.



### MARS

Two projects in recent times which were highly prioritized on time were the European and American Mars-sonar projects. During Christmas and New Year's 2003-04 three sonar landed on Mars; one from Europe and two from the US. Unfortunately the European one did not make the landing, but crashed. The two American managed to land and sent pictures home to earth.

The executions of the projects were tightly constrained by time, which was depended on the circulation of the planets. Every fifth year Earth and Mars are as close as they get which make it possible to launch a spacecraft to Mars. Since there was only a short window of opportunity it was imperative to launch in the summer of 2003. If this opportunity was missed the space centers had to wait until next time Earth and Mars were aligned favorably in relations to each other.

## Choosing a Method – a Strategic Decision

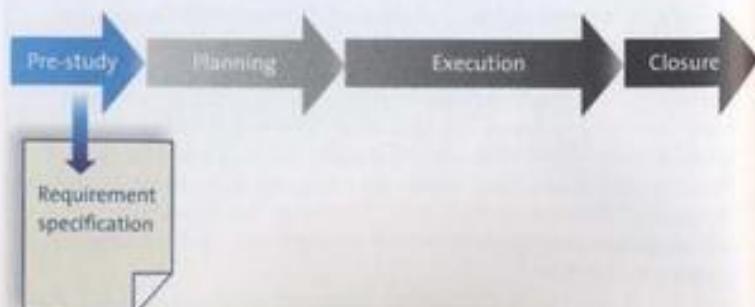
A mountain can be climbed from more than one side. The more specific the goal is, the less liberty is given to the person choosing a solution. If the climbing guide has not said which way the mountaineers should climb, it is up to the climbers to choose the path they feel is most appropriate.

To decide on a solution stipulate the framework for how the result should be produced. It is a strategic decision that has an impact on which kinds of resources are needed and when they are needed. The contents and the method are dependents.

The pre-study should suggest alternative ways or advocate one which seems to be the best solution. Is it acceptable to hire consultants to the project or should we use own resources? Should we develop ourselves or should we purchase a semi-manufactured product which we in turn modify? Should we develop our own work methods and tools, or use licensed products?

## REQUIREMENT SPECIFICATION

It is difficult to say the least, to execute a project without a *requirement specification*. A project goal which is timed and measurable is a prerequisite before an assignment can be called a project, but it is not enough to know in detail what has to be done and how to do it. A requirement specification is generally produced in connection with the project preparations. This is why the requirement specification is a part of the pre-study in the general project model.



In general the requirements are determined in the pre-study.

## Product and Project Requirement Specifications

To clarify what is needed by the project and how to execute it, the requirements can be separated into *product requirement* and *project requirement*. The former concerns the expected result, i.e. what the outcome of the project should be, while the latter concerns how the project should be executed.

### Product requirements for a building project:

- 150 m<sup>2</sup> one story villa with four bedrooms
- Two tiled bathrooms
- Red painted façade and white corners and eave
- Tiled roof made up of recycled triple tiles
- Carport to hold two cars

### Project requirements for a building project:

- Ready for occupation by June 1st, 2009
- Total cost may not exceed USD 450 000
- Tom's Construction to be hired for the project
- Must be built with least possible environmental intrusion

Product requirements are necessary to be able to carry out a project, while it is possible to work without project requirements. This will yield total freedom for the project manager to choose method and decide on time schedule and resources. Unfortunately this freedom of choice brings with it a lack of control over the project.

The more requirements a specification contains the more comprehensible the project is, and through this less demanding to evaluate and manage. Too many requirements can be seen as constraints though. This might curb the project group's creativity. In a worst case scenario this might lead the project down a path which is lined with wrong assumptions on what needs to be done and how best to do it.

It may just be sufficient if the project owner states objective, goal and scope. He or she will hand over the responsibility to further develop the requirements to the people executing the work. It is always the project owner who has the final responsibility for the requirement specification even if it is sometimes produced by someone else.

## PRODUCT REQUIREMENT EXAMPLES FOR A PROJECT MODEL

The model must regulate the organizing of a project from initiation to and including closure.

It must be clearly defined how to initiate and close a project, with a connection to the business operations.

The model must be user-friendly and lucid (pedagogical, easy to understand, logic).

The model must be utilizable for all types of projects: analysis, business development, system development, etc.

The model must have comprehensible tolligates complete with descriptions.

It must be obvious which controlling documents are mandatory. These documents must be found: project scope description, project contract, resource contract, status rapport, delivery acceptance and final report.

The model must contain a project contract which clearly shows the responsibility distribution between projects and line organization.

The model must contain check lists on various subjects: schedule planning, risk management, quality assurance, benefit evaluation, cost analysis, goal setting, communication, etc.

The model must be described in a clear, concise and easily navigated project server.

Roles must be described in the model and clearly show their responsibility, authorities and work tasks.

The model must contain methods/check lists/patterns to carry out comprehensive risk management and a simplified risk management.

## PROJECT REQUIREMENT EXAMPLES WHEN IMPLEMENTING A PROJECT MODEL

The project must commence January 20XX and close before June 20XX.

Project budget is USD 200 000. This includes cost for internal resources.

The project must be initiated through an analysis of the organizational needs and available solutions on the US market. Thereafter a decision on which model to select is taken.

The chosen project model must be tested on three pilot projects before implementing into the organization.

User training is part of the project and at least one informative meeting for the entire organization is to be carried out.

The project group must consist of seven individuals, where the project manager and one resource from the IT department will be assigned fulltime to the project.

The project must have a reference group which represents the business management, users, clients and the administration.

The project must have a steering committee with a minimum of three and a maximum of five individuals. Steering committee meetings must be held regularly, at least every other week. The project manager is the responsible convener and for taking minutes.

Minutes from meetings and other project documentation must be duly noted and saved to the project server.

Requirements which are expressed using terms like increased, better, bigger are not appropriate to use in a requirement specification since they are difficult to measure. Because of this, it is important to place criteria on specifications so they can actually be evaluated correctly.

All requirements in this example are easy to mark off. It should be possible to answer YES if the requirement is fulfilled.

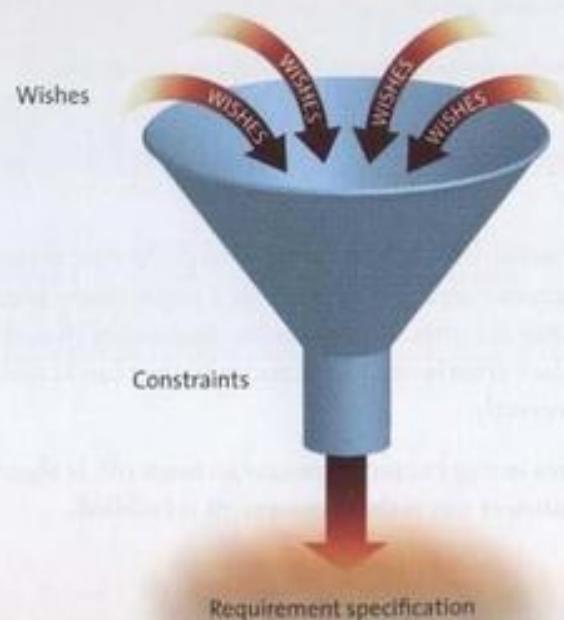
Requirements	Measurable criteria
Increased wellbeing	10% less sick days
Increased usage	25 additional logins per day
User friendly	Support needs to decrease 20%
Pleased customers	Complaints from customers to decrease 30%

## Formulate the Requirements

To write a requirement specification is a process which is initiated by gathering the requirements on the project. These are established by the sponsor and other stakeholders. The project charter is a useful source of information. This is where the project owner's original requirements and wishes are found.

All requirements which are transferred into the requirement specification are to be considered absolute. It is unnecessary to transfer wishes since these do not represent requirements necessary to reach the project goal.

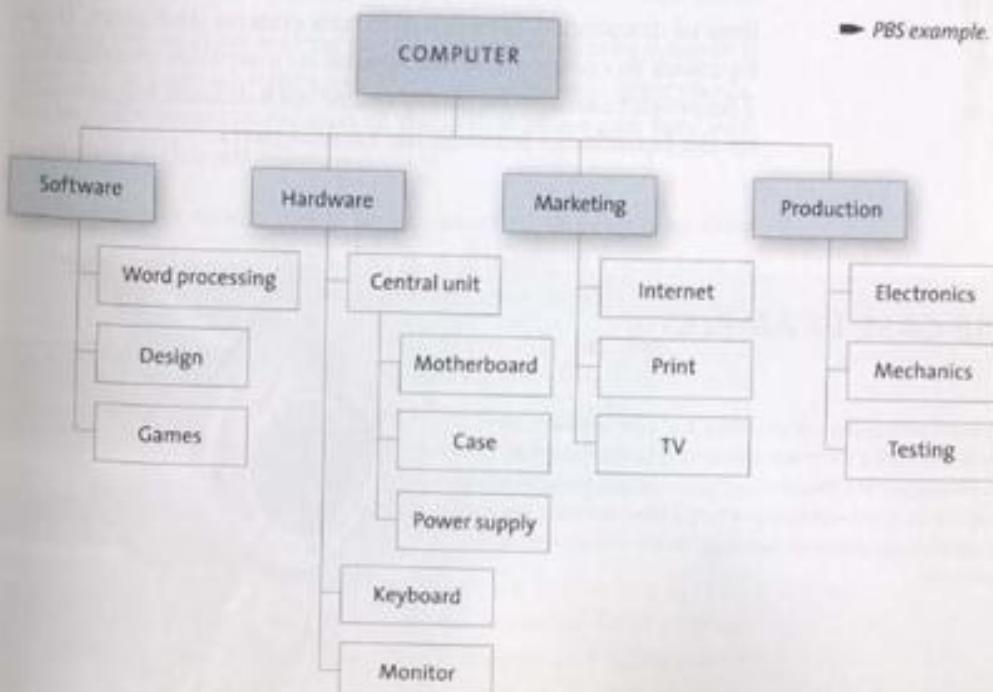
The following check list yields structure and time to reflect on the upcoming work with the requirement specification.



1. Gather requirements – work shop, interviews
2. Describe the requirements – categorize requirements, chart dependencies, break down to lower levels and determine time and costs
3. Prioritize requirements – “MoSCoW prioritization”  
Must: must-have requirements for the success of the project  
Should: should-have requirements which are nice to have, but not critical to the project  
Could: could-have requirements which are within competency and time schedule, but not obligatory to the project  
Would: would-like-to-have requirements, but only if time frame allows it
4. Prioritize requirements – choose the requirements needed for the project

## Product Breakdown Structure

A comprehensive and detailed requirement specification is often perceived arduous to comprehend. By categorizing the specification into smaller fractions and describing the requirements separately, the specification becomes more lucid.



It is an advantage to break down complex products into a so called *Product Breakdown Structure (PBS)*. The requirements on a new computer development can be categorized and separated into software, hardware, marketing and production. The hardware can in turn be separated into central unit, key board and monitor etc.

### Use Cases

One way of describing the requirements is to specify typical *use cases*. Instead of requirements on how the product should be designed and constructed, the use of the product is described, or how it should be perceived. Use cases can extend over the entire project, or just a part of it.

Another way is to describe scenarios, i.e. in situations where the product is perceived to be used. These methods will help to put the project into perspective and see the end result as it is envisioned. This might trigger a creative thinking process which will enable you to see the requirements in a different light. By way of a flow-chart it is possible to clarify the solution. With an illustrated process it is possible to describe the flow of documents between different systems and users. It can be easier to comprehend, compared to a written specification. The project can also be modularized with defined requirements on the boundaries between the various parts.



Goal setting, and with this, the specification of requirements, is increasingly a process during the project where a result is sought after. The project manager has to develop the ability to adapt to different predicaments as a complement to planning.

The final solution will emerge as the planning proceeds and the project is developed step by step.

### Project Without a Requirement Specification

It is obvious to think that a project has to have a lucid requirement specification. How else to know what to do and how to evaluate the result? But, this is not always the case. Sometimes it is clear which effect is wanted, but not what has to be done to achieve it. Which is the best way to attack this predicament?

It is possible to start several parallel projects simultaneously if there are unlimited funds available, and evaluate afterwards. Product development projects in the initial phase can very well be likened to this situation.

A new product model needs to be launched to keep a healthy distance to the competitors, but it is difficult to know how it should be specified. The technical platform makes it possible to choose between different alternatives, and the marketing department's analysis of what the customers will ask for a year down the line, does not help in this situation. Certainly, it would be perfect if there were resources available to develop several models at the same time, and then let the customers decide which product should go into production.

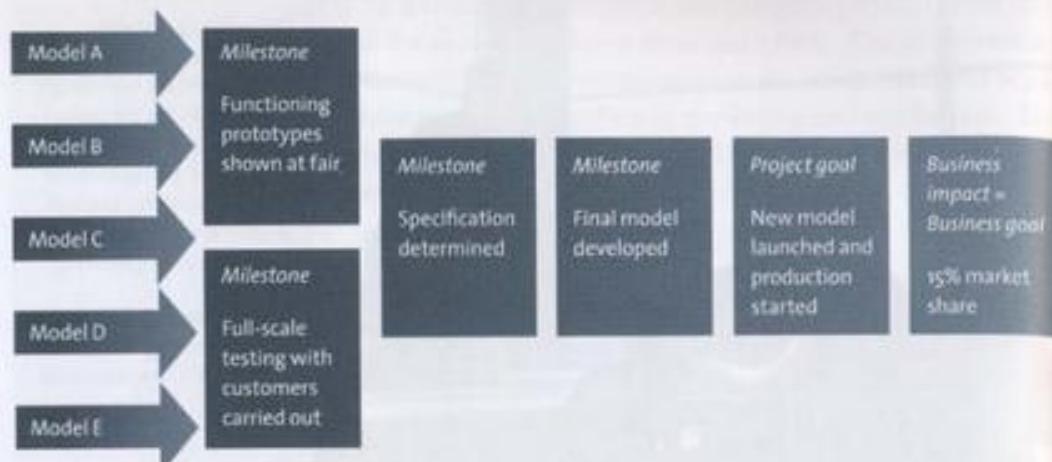
This selection could happen through popular choice at e.g. fairs or by letting customers try the product. Based on the outcome a model is chosen for further development and subsequent production and launch.

## USE CASE EXAMPLES



The user takes a photo of an object, e.g. a car, with a camera phone and adds a short text with an explanatory caption.

The picture and the text are sent as an MMS to the advertising company where the picture and text is processed and eventually posted directly on an internet page. An e-invoice is sent to the advertiser.



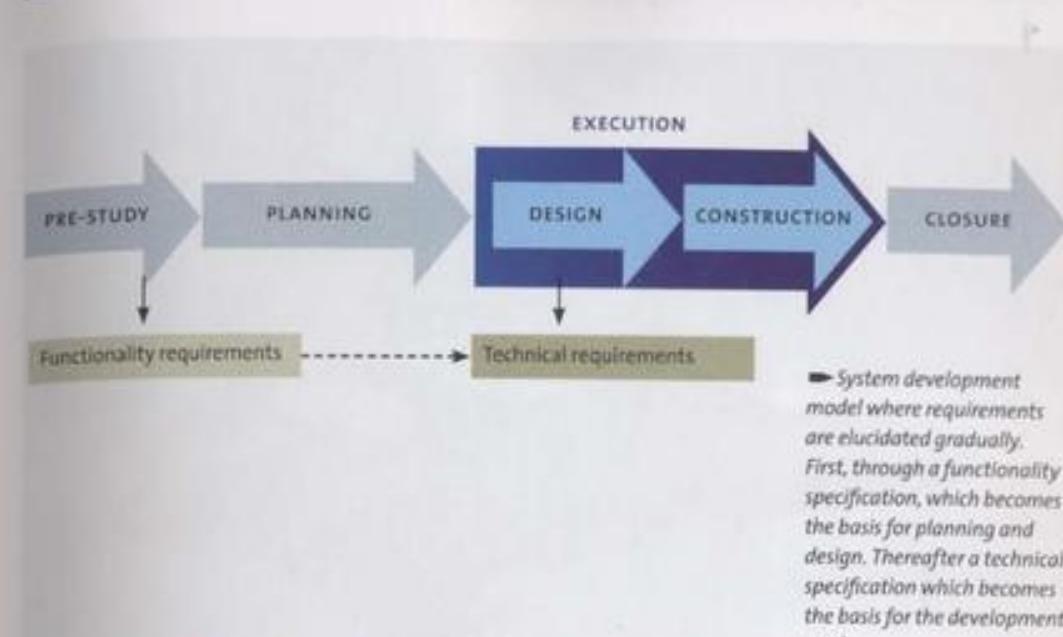
► Product development model where several solutions are evaluated.

A project can be documented and executed gradually. The requirements are specified as knowledge and experience are gathered.

Most research projects and creative assignments are suited for this kind of method, and even in system development projects. Research projects are often focused on exploring possibilities within a specific area to discern new knowledge and obtain more experience. Neither the project owner nor the researchers know beforehand what they will learn from the process.

System development projects are often subject to complex requirements which can initially be described on a functional level only. It is necessary to start the project to produce the technical requirements. The initial execution phase is used to work out the requirements, analyze existing systems and collect and document everything in the requirement specification.

*The Dynamic System Development Method, DSDM, is one example of a system development model where the requirements are elucidated progressively during the execution phase.*



## REQUIREMENTS ON THE CLIENT

The client is usually a part of the process to produce the solution. It might be necessary to get sub-results tested and approved before the project work proceeds. If this is a prerequisite to reach the goal on time, it becomes a requirement which has to be found in the requirement specification.

### Client Competency

The gap between clients and contractors is sometimes immense. In connection with the procurement of complex technical projects it is sometimes motivated to use a go-between, a so called broker, who coordinates the client's wishes with the suppliers of the solutions. It is essential that the technical requirement specification is realistic to be able to reach the goal at all.

It takes a lot of knowledge and experience to work out a requirement specification for a product in a fast developing technical field which is to be delivered ten years down the line.



► JAS 39 Gripen,  
Swedish fighter plane.

This was the reality faced by the industrial project which was developing the Swedish fighter plane JAS 39 Gripen. The agreement between the client Swedish Defense Materiel Administration and the project group IG JAS was signed in 1982 and the first planes were delivered in 1992.

The terms low, medium and high tech are often used within technology development. The first one requires existing technology to be used, while the second one requires certain development of new technology and the third one requires a substantial proportion of new technology to be developed.

There is also a higher level called super high tech which signifies from the very start that it is not known how to solve a particular task. In 1962 when President John F. Kennedy proclaimed that an American would land on the moon before the end of the 1960's, nobody knew how to make it happen.

© COPYRIGHT GRIPIEN INTERNATIONAL



► The astronaut John Glenn is showing President Kennedy and Vice President Lyndon Johnson the space capsule on February 23rd 1962.

### Proceed or Pass?

The pre-study is the foundation upon which the decision to proceed and start planning is taken. It is the steering committee's responsibility to decide if the prerequisites are acceptable enough to carry out the project or not.

### OUTLINE OF THE MILESTONE PLAN

The roadmap to the goal is best shown in an overarching flow chart containing the most important milestones in the project. This plan forms the first version of the project's *milestone plan*, and its purpose is to generate consensus on the execution.

Milestones ought to be identified by looking at the project's WBS. Choose and specify the work packages which suit the project's execution best. The milestones should be described as goals, i.e. they should be measurable. The SMART-test will work as verification.

Examples of milestones in a building project:

- Foundation completed
- Walls erected
- Roof laid
- Roofing party held
- Interior decoration finished
- House ready for occupation

The number of milestones varies between different projects but there should never be less than three and not more than twenty in a plan.

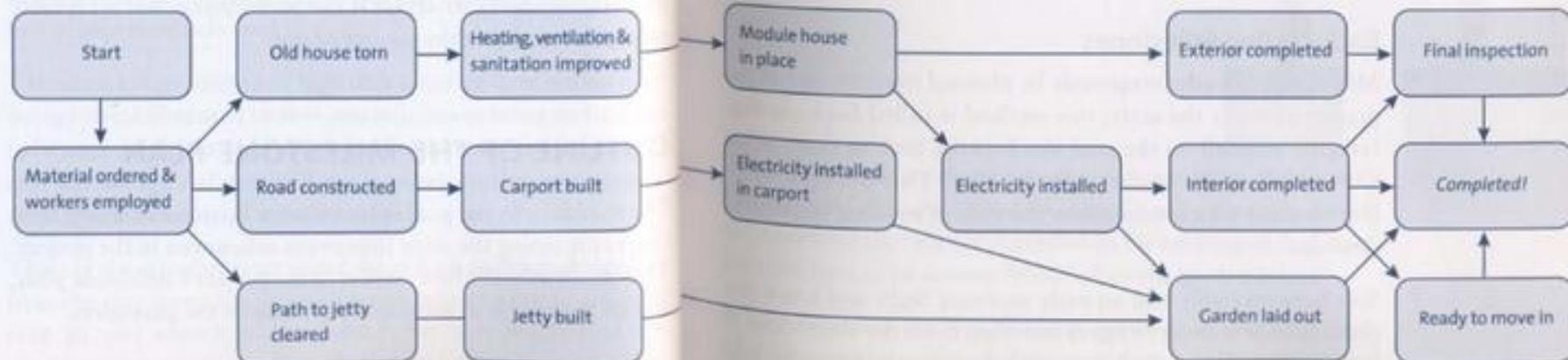
The milestone plan in the pre-study need not be detailed, but should render an overview of the project. The plan can be included in the pre-study report and is as such a part of the documentation on which the decision to move forward and plan the project is taken.

The milestones are not scheduled by time in the overview plan. It is actually unsuitable at this early stage. Too many scheduled milestones can make optimized project planning difficult. Time scheduling of the milestones will come naturally in connection with the activity planning. The arrows in the plan indicate dependencies, i.e. in which order the milestones should be achieved. As a consequence of this milestones in parallel flows are not dependent on each other.

Regardless of the size of the scope and the complexity, all projects need milestones. Non-complex projects can be sequentially planned and it is possible to identify milestones which can be entered into a flow chart. What is considered complex or not depends on the project manager's experience and how confident he or she is about the assignment. The task might be reminiscent of previous projects, or the project boundaries are well defined which minimizes the risk of missing something essential. But, if the project is of a significant size is it always recommended to do a WBS.

Both PMI, Project Management Institute and IPMA, International Project Management Association, has their own methods to evaluate complexity in projects in connection with certifications. These are useful when classifying own projects.

Use brainstorming to identify the milestones.





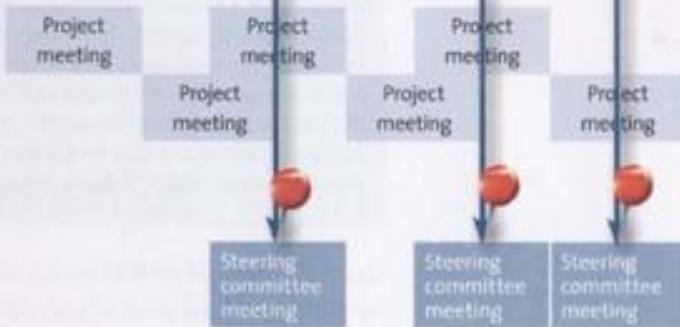
### Back-casting Milestones

Milestones can advantageously be planned from the end of the project towards the start; this method is called *back-casting*. Imagine yourself on the goal line looking back in time. What has to be done for you to make it there? This is a very effective method which minimizes the risk of missing important elements.

You have probably had an early morning flight and know the procedure. It is easier to figure out when to set the alarm clock if you go through the whole procedure backwards; from check-in to awakening.

Milestones	1	2	3	4	5	6	7	8	9	10
Material ordered and workers employed										
Old house torn		X								
Heating, ventilation & sanitation improved			X							
Module house in place				X						
Exterior completed					X					
Electricity installed						X				
Interior completed							X			
Ready to move in								X		
Final inspection									X	
Road constructed				X						
Carport built					X					
Electricity installed in carport						X				
Path to jetty cleared			X							
Jetty built				X						
Garden laid out					X					
Completed									X	

SOURCE: ANNA-KARIN GETTMER, ACO CONCERN AB



The example above show that the milestones for "the road", "the carport", "the path" and "the jetty" can be placed in several columns since they are not depended on the building of the house, but they have to be accomplished before the garden is laid.

A milestone plan can also be a brief overview of the time schedule. This can be sufficient documentation to plan project and steering committee meetings on.

Project meetings can e.g. be planned following every milestone, while steering committee meetings are planned according to more important milestones, and when several milestones are to be reached simultaneously.

## INNOVATION PROCESS

The traditional picture of how innovations are materialized is antiquated. In his book "Democratizing Innovation" Eric von Hippel kills the conviction many people have of geniuses in a room scratching their heads producing new products and has flashes of geniality simultaneously.

Thanks to modern-day IT advancements customers can not only give feedback on products, they can also be part of the development and enhancement of them. It is called collective intelligence when a so called "community" is presented with a problem instead of just a few experts. Microsoft Corporation has more than 50 communities on different windows applications. Even Lego, the Danish toy manufacturer uses customers during their development projects. So called "lead users" helped when the robot Mindstorm was developed.

The "open-source" movement is an obvious example of the new innovation process. Two strong forces lie behind this movement. If there is no satisfaction with the products offered simply refrain from buying it. And the innovation process in itself is a joyful experience.

Gartner Consulting considers communities as a part of the trend that consumer electronics make its way further into the companies. Those companies who try to stop users do themselves a disservice. But there is one negative factor in this. The risk is that the users get access to business secrets and that the creative control is handed over to people who do not have any other affiliations to the company, than being the customers.



## Establish the Project Group

All human resources in a project have their own individual goals and agendas they want to realize. It could be anything from testing own skills, climbing the career ladder or make a certain amount of money.

If there is unanimity between the project group members' individual goals and the project's goal the entire project will be strengthened and the possibility of success will increase.

The more the project manager knows about his project group the easier to create tasks which harmonize with the individuals' personal goals. It is all about creating a win-win situation where all feel successful.

## THE PROJECT'S ORGANIZATION

**A**LLE ROLES, authorities and responsibilities have to be clearly organized. Every project role has to have a unique description. Avoid shared responsibility since this will most likely cause insecurity on who does what, risk of several people carrying out the same tasks or that important tasks are not done at all.

The most important roles in a project belong to the project manager and the project owner, also known as the sponsor. Together, they make up the core of the project. The whole project is organized around them.

### The sponsor's assignments:

- Is the project owner.
- Is responsible for business impact and project goal.
- Appoints project manager and allocate resources.
- Approves project deliveries.
- Appoints steering committee.

### Project Owner/Sponsor

The project owner role is not exactly a new role which has come to be in recent times. It has been around for centuries. We know the project owner role was used during the Middle Ages in connection with art productions in renaissance Florence.

The *project owner* is expected to place demands and critically evaluate the result. Their competence will ensure higher quality in the products and reduce the cost of the projects. The project owner has the overall responsibility despite the fact that he or she has delegated the responsibility for the execution of the project to the project manager. Another name for project owner is sponsor, i.e. that individual who has delegated the resources.

In a project organization the sponsor has an internal role even though the project is an assignment from an external client. Uninitiated individuals should not decide on how to utilize internal resources, i.e. which projects should be executed. The project owner is a decision-maker who has authority to decide whether or not to start a project. Internally he should represent the client, i.e. the external client, while the project manager represents the supplier.

The project owner role is uncomplicated in smaller projects and the relationship between client sponsor and supplier is relatively simple. The bigger and more complex the projects are, the more nuanced and complex the project owner role is. Demands on the competence required increases. It is possible to have several project owners in very large and complex projects, where these are listed and connected in a sort of project owner table. The example below shows the sponsor chain for the JAS project, which developed a Swedish fighter plane. Every project owner has a client and one supplier.

Level 1	The Swedish Parliament
Level 2	The Swedish Government
Level 3	Swedish Defense
Level 4	Swedish Defense Materiel Administration
Level 5	IG JAS Project
Level 6	Sub contractors

► Project sponsor chain.

### The Project Manager

The main assignment for the *project manager* is to deliver a result to the sponsor through managing the project group. The project manager is to be considered the project's CEO. The project manager has to have basic leadership skills, just like any other CEO.

To become a successful project manager it is important to take a genuine interest in people and to know what makes them want to come to work every day. An ability to communicate is also needed, so that the employees feel appreciated and through this strong enough to take responsibility for their own actions. To be a project manager also requires you to act as a personal coach, who sees every individual's talents and strengths and to find the right place for everybody in the project. You should also know your own strengths and weaknesses, and make sure you have support in areas where you are lacking skills. Finally, you have to be a human being, mentor, expert and boss all in one.

The different phases in all projects demand different leadership. The project manager has to command several leadership profiles and be able to use them in different situations. Leadership is not a goal in itself; it is the ability to deliver useful results which is essential. Good leadership does not count if you work toward the wrong goal, or use an inefficient methodology.

### The Project Group

The *project group*'s main responsibility is to carry out the planned activities which lead to the anticipated project goal. The members of the team are expected to comprehend and understand what the project should deliver. If anything is unclear the project manager should be approached.

A project team should only consist of individuals who are needed to carry out the project assignment. The selection should be based primarily on competence, but the ability to cooperate is also important. Competence is a combination of specific knowledge and the ability to apply this. This entails that competence is something which is developed through hands-on practice, i.e. through experience.

### The project manager's tasks:

- Makes sure the project goal is reached.
- Plans and organizes the project.
- Delegates and follows up on activities.
- Handles problems and solves conflicts.
- Influences and gets things done.
- Plans and heads project and steering committee meeting.
- Communicates, engages and motivates.

### The project group's tasks:

- Makes sure delegated activities are carried out.
- Plans and organizes own activities.
- Reports on achievements and working hours.
- Follows quality systems, methods and routines.
- Participates in project meetings.

### The steering committee's tasks:

- Ensure that the project is in line with the organization's overarching goals.
- Secure project scope statement and project plan.
- Assess results and decides if project should proceed or be suspended.
- Decide on change proposals.

If there is no steering committee the tasks are parts of the sponsor's responsibility.

## The Steering Committee

The *steering committee* is the project's deciding body and as such has a special responsibility for the most important tollgates between the project's various phases. It is not necessary to have a steering committee in every project. In smaller projects where the relationship between the sponsor and the project manager is unambiguous, it is possible to do without a steering committee. I nevertheless recommend appointing one.

A steering committee should only consist of individuals who possess the necessary competence and experience to aid and assess the project. The sponsor usually acts as the chairman of the steering committee. The project manager, on the other hand, is usually not a part of the committee, and is as such only there to present current status and progress of the project. This can be likened with the relation between a board, its chairman and the CEO of a company.

No party in a steering committee should be stronger than the other. If at all possible it should be avoided to only select members from the company's management group. There might be interdependencies that will limit individuals' possibilities to act freely. It is difficult to specify an ideal size on a committee. A small committee might lack in objectivity while a large committee might have difficulties in making quick decisions, and thus be hard to handle for the project manager.

The sponsor has to make sure the steering committee members schedule the meetings by project start.

## The Resource Owners

The project's *resource owners* are usually *line managers* who are not part of the project organization. Resource owners provide the resources to the projects the company wants to run, and are therefore also responsible for their competence and further development and advancement within the company. Project managers should utilize the resources from the line managers in the most advantageous way.

Project managers should be meticulous in keeping the resource owners informed and have an open dialogue with these. This



is necessary for the cooperation between line managers and project managers. As previously mentioned, the *project group members* often have one role in the organization under a line manager, and another role in the project where the project manager is the boss.

## Sub Project Managers

Just like the name spells it, the *sub project managers* have responsibility for parts of the project. The sub project manager's main mission is to deliver a sub result to the project manager through managing his own project group. Sub project managers must therefore also master basic management duties.

## Quality Assurance Managers

A *quality assurance manager* is an independent person whose responsibility is to assess the projects in terms of work methods and results. A quality assurance manager is usually appointed by the sponsor or the client. Investors and insurance companies often appoint quality assurance managers to evaluate how the projects they are involved in are executed.

## Reference Group

The *reference group* is a forum for testing new ideas, solutions and previously achieved sub results. If used to its maximum advantage it is a very effective tool for the project manager when the project needs to be kept on track towards a goal which not only is in accordance with the plans, but also the stakeholders'

expectations. The reference group's perspectives yield valuable information which might lead to revisions of the specifications, and plans. A reference group can be made up of potential users, prospective clients and partners.

### Project Coordinators

It is usually necessary in large projectized organizations and corporations, where many projects are run simultaneously, to coordinate resources in programs and between the projects and the line management. This role is often called project coordinator or multi project manager.

### Mirrored Client Organization

During large and comprehensive system and organizational projects which demand excessive participation by the client sponsor, it is not uncommon that the client has its own project organization. This operates as a receiver of the project.

The client's project organization often mirrors the contractor's project organization and therefore has a sponsor, a project manager, a project group etc. The mirrored organization can have anything from an influential and leading role, to a more passive one until the responsibility for the project is handed over to the client.

### Users

The users are the individuals who utilize the project's result. Within healthcare it is the patients or hospital staff, in a finance department it is the employees, when building an apartment complex it is the tenants and with a telecom operator it is the customers.



## THE GROUP'S COMPOSITION

Cooperation within the group depends on the composition of it. It might seem obvious to you to recruit people who are like you and thereby create a group that understand exactly what you want from it, and where cooperation will flow smoothly. But this will not guarantee success for the project.

Often, a group which is composed of people with the same kind of personalities will act inefficiently since they all see problems and possibilities from the same perspective. The group will be narrow minded and risk getting stuck – this is called group-thinking.

An efficient group should consist of people with different characteristics and qualities. This will increase the possibilities of looking at problems from different angles and it makes it possible to find solutions which address real needs. There is, however, a risk of difficulties concerning teamwork and cooperation in the heterogeneous group due to the differences in their personalities.

### Roles Within the Group

Project groups usually consist of individuals with different personalities and qualifications. Depending on who you are and which qualifications you command, you will most likely fill a certain role in the project. How apparent you are in that role depends on the other individuals in the group.

Do individuals have free movements to act out their roles or are there competitors around? What happens when different roles meet in the group? A lot has been said and written about group compositions, and how to establish the ultimate work groups. This chapter will deal with the most common models. Only a vague picture of the complex individual is reflected through testing. Different tests measure different things. Because of this, tests should only be used as reflective tools. Tests can be misinterpreted, or even worse, manipulated. Whatever the opinion on tests, I believe they yield valuable information which is useful when trying to understand why a group is not working.

In the ancient Greek times personalities were divided into four categories by way of body fluids.

A phlegmatic person had too much phlegm and was considered lazy and resistant to change.

A sanguine person had too much blood and was considered sociable.

A choleric person had too much of the yellow bile and was considered bad-tempered.

A melancholic person had too much black bile and was considered depressed.

### Belbin's Team Roles

Through the so called nine "team roles" Meredith Belbin describes how different characteristics of group members are and how they will most likely act in a group. Also called the Belbin Self-Perception Inventory or the Belbin Team Role Inventory.

A plant is a problem solving and creative person full of ideas, who might sometimes be too selfish to communicate efficiently.

A coordinator is a mature leader with great self-confidence. Adept at clarifying goals, making decisions and delegating. Sometimes perceived as being manipulative and will tend to delegate all work on others.

A monitor evaluator is a discreet calculated person who sees all available options with the greatest clarity. Lacking enthusiasm and has a hard time inspiring themselves or others.

An implementer is a disciplined, reliable, conservative and effective person who is good at turning ideas into positive action. Might be perceived as inflexible and narrow-minded when introduced to new ideas and concepts.

A completer finisher is a conscientious and eager hard working individual who solves problems and makes sure to deliver on time. Has a tendency to worry and has a hard time delegating.

A resource investigator is an extrovert, enthusiastic and communicative person who explores possibilities and secures resources. Often over-optimistic and easily loses momentum.

A shaper is a challenging task-focused and dynamic person who thrives under pressure. Often compelled to attempt the impossible. Easy to provoke and has a tendency to insult others.

A teamworker is a cooperative, mild and diplomatic person who listens and builds relationships without creating conflicts. Has a hard time taking decisive action when needed.

A specialist is a focused, passionate and independent individual who brings unique knowledge and dexterity to the group. Will

only contribute within a narrow area of expertise, and is prone to get stuck on technical matters.

For optimal teamwork all or most of these roles should be represented in the group, preferably by different people.

Belbin's team roles are identified through a test. To achieve an as fair as possible assessment, both colleagues and the employee's closest boss, will answer questions about the person being analyzed. The analysis will not only show which of the roles are closest to his or her personality and which one is the dominating one, but also which other roles that can easily be adapted.

Much criticism has been voiced against these analyses, where Belbin's team roles are just one of them. Some think there is a risk that people might believe too much in the result, and as such use his or her role to enforce a certain behavior. It is important to avoid becoming your team role, i.e. strengthening the positive and negative characteristics the role describes.

We humans are complex beings and we possess many different characteristics. Testing only gives us a partial picture of the personality. It is up to the individual to decide how much he or she actually wants to become a role.

### Adizes

As an alternative to Belbin's team roles Ichak Adizes four characters can be used: the Producer, the Administrator, the Entrepreneur and the Integrator (PAE1).

The producer will look to the result first and foremost. Everything else is of less importance. The producer is mostly about action and one who might have a hard time delegating. He or she is often a workaholic. The producer is great when goods and services are to be produced with high quality before the competitors.

The administrator will make sure procedures and tasks are done in the correct way. Rules are to be adhered to. The Administrator is good at planning, coordinating and controlling.

The entrepreneur is creative with a constant flow of ideas. He or she sees possibilities where others see problems. The Entrepreneur

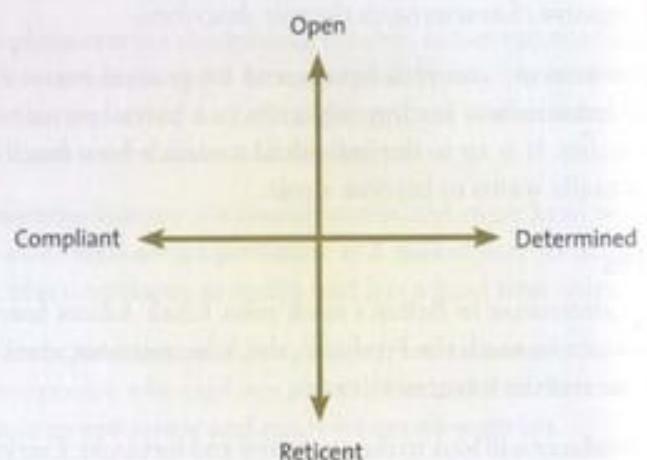
is an innovator and is willing to take risks, but is also impatient, charismatic and can be quite poor at completing tasks.

The integrator puts the employee on center stage. He or she makes sure the group works and that the mood is great. Perfect harmony can sometimes be more important than the tasks and the efficiency of the group. The integrator is good at delegating, but can have a hard time making own decisions.

Just as in Belbin's model, all the roles should be represented in a project group to facilitate a smooth project flow.

### Communication Profile Model

A communication profile model is often used to explain how the teamwork within a group is working. It is a simple model which takes off on four different human characteristics: open, reticent, determined and compliant.



To be **open** entails being relationship-oriented, easy to get to know, adapt easily to new situations and like testing new ideas.

To be **determined** entails being result-oriented, decisive, competitive, fast and wanting to be center of attention.

To be **reticent** entails being task-oriented, detail-focused, a completer and also to be apprehensive in letting new people close.

To be **compliant** entails being diplomatic and able to understand the needs of the group, and to be caring and not promote oneself on others' expense.

We all have these characteristics, but one is more dominant. The model is described in Mikael Ohlsson's Swedish book on relationship-oriented communication. A test is included to see where you and the other group members are positioned.

Four characters are found, one in each of the four fields in the model. A person who is more open and determined is called a **Communicator**. The combination determined and reticent is found in a person who is a **Motivator**, while the **Analyzer** is reticent and compliant. Finally, the **Friendly** character who is open and compliant.

The group's composition controls the relations and communications. People often adapt the message in a way that fits their agenda. Individual personality plays a big part here.

An expressionistic communicator might have a hard time understanding an analytical person and vice versa, since they have little in common. Similarly, problems might arise between a friendly person and a motivator.

Both combinations are found diagonally placed in the model. The communicator can effortlessly work with the friendly person since they are both relationship-oriented. Similarly, the motivator and the analyzer have the reticent characteristics in common.

If a certain character dominates the collaboration the result will most likely be affected in such a way that suits the dominating character.

Generally, the communicator brings the ideas, the motivator implements the decisions and makes sure the project is on time and on budget, the analyzer makes sure what has been promised is fulfilled while the friendly character has a sharp focus on teamwork and of the sentiments in the group.

Every character obviously has its weaknesses. E.g., the communicator has a hard time focusing on just one idea, the motivator

is impatient, the analyzer does not readily change something which has already been agreed upon and the friendly character can sometimes forget the goal. We will perceive ourselves differently depending on who the other team members are. Different sides of us will have a possibility to emerge. If one character missing in the group, it is most likely that a person, who is close to this role, will take it if there are already several of her own kind in the group. This is why we perceive ourselves quite differently in different situations. Basically, we are the same people, but the situations make us change and adapt our behavior.

The quality of the analysis increases considerably if your own self-evaluation is complemented by an evaluation from colleagues and superiors through a so called "360-degree review", which is similar to what is done in the Belbin test.



## Myers-Briggs

Myers-Briggs Type Indicators, MBTI, which are built on the typological theories of Carl Gustav Jung, make up a map of habitual patterns which are assessed by four indicators.

Dichotomies		
Where to place attention	Extraversion / Introversion	E or I
How to take in information	Sensing / INTuition	S or N
How to interpret information	Thinking / Feeling	T or F
How to relate to the outside world	Judging / Perceiving	J or P

You are either extravert or introvert, relate to the surroundings with your senses or intuition, interpret the surroundings analytically or emotionally and relates to the surrounding world in a judging or perceiving approach.

The four dichotomies are combined in 16 different types, which are named with a combination of four letters, e.g. ENTP, ISTJ.

		Sensing		Intuition		Judging	
		ISTJ	ISFJ	INFJ	INTJ		
Introversion	ISTP	ISFP	INFP	INTP	Perceiving		
	ESTP	ESFP	ENFP	ENTP	Perceiving		
Extraversion	ESTJ	ESFJ	ENFJ	ENTJ	Judging		
	Thinking	Feeling	Feeling	Thinking			

MBTI is the most utilized personality test. A very large database exists with previously completed tests where it is possible to extract which professions has which preferences, and who without effort, respectively has complications, when working with each other. The individuals who are diagonally placed in the matrix risk conflicts since they have the least characteristics in common.

## Which Model is the Best?

It is difficult to say which model or test is better at describing how teams develop depending on the composition. It might be a good idea to study several in detail and then pick the model which suits the particular project best.

The resources should be utilized in the most optimal way, based on the information given and discussions which have been held in the group.



► A comparison of Belbin's team roles, Adize's characters and the communication profiles. It is not possible to place the specialist role into the model.

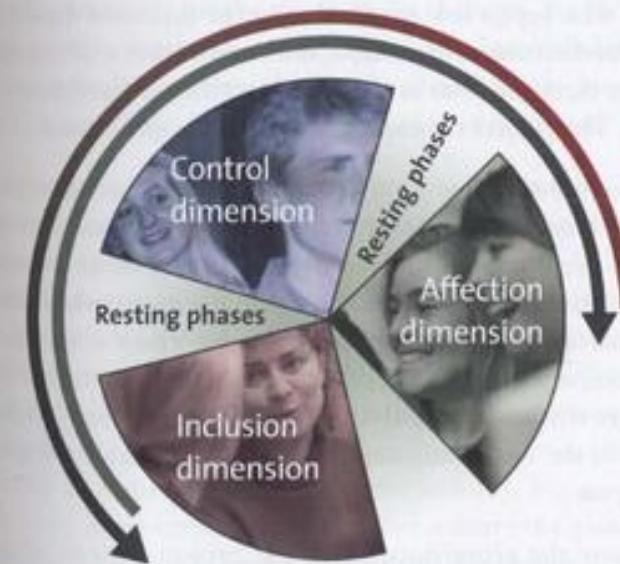
It is highly important to try to create a balance in the group. Individuals with diverse characteristics often form the most effective groups. But it is also advantageous to have a certain imbalance in the group, with a tiny predominance towards the direction which promotes the change the project is to deliver.

## DEVELOPMENT PHASES WITHIN THE GROUP

All groups change over time; this is true even for project groups. If enough time is applied and the leadership is adapted to the group's needs, it will develop into effective and mature team work where participants take full responsibility for their actions and own tasks, as opposed to being immature and dependent on the project manager. The process follows a particular pattern sometimes called forming-storming-norming-performing.

### The FIRO Theory

FIRO (Fundamental Interpersonal Relationship Orientation) is a frequently used theory which is used to describe a work group's development from the first meeting and on to a mature effective team where all members have full confidence in each other. The FIRO theory was introduced by William Schultz in 1958 and has three core dimensions, which are Inclusion, Control and Affection.



SOURCE: WILL SCHULTZ

► The FIRO theory.



**The inclusion dimension** – The group members are gathered for the first time and are presented with the task. They have a great need for assurance and clarity regarding what is to be carried out and expected from them. The project manager has to assure the group by structuring and if necessary, manage down to details. If the project manager fails in this, the group will feel abandoned which will lower the motivation and affect the result in a negative way.

The inclusion dimension is first and foremost recognized by everyone as being polite and civilized. Everyone wants to make a good impression and they can hardly be considered completely honest. The members often ask themselves questions like: Am I accepted by the group? Do I fit in the group? Do I accept the other members and do I want to be a part of this? The participants struggle with inner conflicts; do they want to be a part of the group or do they want to abandon the group. When at last they have decided to stay, they will strive to be a part of all the way.

**The control dimension** – This is the dimension where the most struggles take place and where the roles are shaped. Those individuals who kept a low profile during the inclusion dimension will make their voices heard now. Informal leaders will step forth and take their positions in the group and they will influence the project. The project manager's role might be questioned.

If the project manager is careless, the control dimension phase will be a true "black hole". All the energy will be used to fight for own personal gains at the expense of the other members and the task to be carried out. Common questions asked during this phase focus on the individual's and the others' competence. Is my competence recognized, respected and appreciated? Do I recognize the others' capabilities and competencies? Conflicts are out in the open and need to be solved to enable the group to move on.

Make sure the group focuses on the project instead of each other. The project manager has to act as a team leader and should teach the group members how to solve conflicts among themselves. The group needs more support than control.

**The affection dimension** – This is the third dimension in the group's progress. It has overcome all conflicts and has become a team where everyone feels confidence to each other and their own capabilities. They give and take and are reciprocally dependent on each other. The participants are secure in their roles and take responsibility for their assignments in the project. They dare show their strengths and disclose their weaknesses. The project manager guides the group through setting up the framework and by delegating tasks. Those who are to fulfill a task should be left to it and also decide how to complete it. Give them responsibility and authorization, even when it comes to the planning, since this generates motivation and responsibility for the project's goal.

If the project manager minutely controls a group in the affection dimension, the participants will most likely assume he or she does not trust them, which will lower the motivation and ambition to work. It will immediately affect the end-result. In a worst case scenario the most independent and experienced individuals will leave the project.

**Resting phases** – Between the different dimensions, which can be very strenuous for the group to get through, are the resting phases where the members can relax. These intervals are important. It is important though, that the project group does not get stuck in tranquility and dare to move forward instead.

The process is cyclical and is therefore not stable. To have succeeded in making it all the way to the affection dimension, does not mean it is time to relax. The group will fall into the earlier dimensions when a change happens, within or outside of the group. This is especially true if a new member is introduced, or if a task is changed so that the goal is affected. It could be exterior changes, e.g. a new CEO in the company or new owners all together. Anything which affects the project or the group, directly or indirectly, will affect the stability, but most likely only on a short-term basis. The more mature the group is the less time is needed to return to the third dimension.

## Team Building

It is important to gather the team early on in the process to establish the goal and to inform what is expected of each and everyone. It will also give the participants a possibility to get acquainted. The sooner the project manager achieves a group feeling the sooner the collaborations will start. The purpose of *team building* is to accelerate this process. Thorough team building can effectively bring the group through the inclusion dimension and achieve assurance which is needed to succeed with the project.

## NORMS AND RULES

People feel safe in the known and in situations they know they master. This is why some people are secure in certain situations, where others see only chaos. The bottom line is, it has to do with the individual's self-confidence. If an individual is secure in himself the external circumstances have less significance. Being secure is an emotion and a certain situation can be experienced differently from individual to individual.

*"Not until I have complete confidence in myself and the knowledge I possess, can I share this with others. Then I do not have to worry that someone else will make something better of the knowledge I have passed on. Because I know then that I have contributed to the final result and I feel rewarded through that"* says Eva Torsson, Organizational Consultant in Knowledge Management.

Being safe is one of the basic needs we humans constantly strive for. Every individual's need for assurance has to be respected. That is why it is important to reflect upon which sense of security is projected within the group. The project manager should avoid creating a false sense of security by shutting out everything which is threatening or negative. That inhibits the individual advancement and can even damage the organization.

	Unambiguous rules	Ambiguous rules
Expressed rules	<i>Established and accepted rules build secure relations.</i>	<i>Different interpretations create insecure relations.</i>
Unexpressed rules	<i>Manageable relations which are built on a code of conduct in the corporate culture.</i>	<i>Manipulative relations which present opportunity to exert power.</i>

We feel secure if we know what to expect. Rules and routines create security and if we know these we can choose to follow them. Each person will adhere to rules in different ways. Some try to bend and challenge the rules, while others follow them without exception. Whichever way one chooses to play when the rules are known, they give way to a sense of security because there is something to relate to.

Ambiguous rules create uncertainty and insecurity. Also, a lot of energy is wasted trying to understand the name of the game.

## The Corporate Culture

The corporate culture is the description of the dominating values, attitudes and behavioral norms which are found in an organization. Many of us would explain the corporate culture as "the way we have always done things around here".

*"The specific collection of values and norms that are shared by people and groups in an organization and that control the way they interact with each other and with stakeholders outside the organization. Organizational values are beliefs and ideas about what kinds of goals members of an organization should pursue and ideas about the appropriate kinds or standards of behavior organizational members should use to achieve these goals. From organizational values develop organizational norms, guidelines or expectations that prescribe appropriate kinds of behavior by employees in particular situations and control the behavior of organizational members towards one another."*

Even projects are affected by the company culture which is dominating in the organization. It is important as the project manager to know the unwritten rules which affect what is executed and what influences the decision-making process. What the individual experiences as rewarding will be accomplished. The work tasks that are noticed by superiors are considered meaningful and will therefore be carried out, while just as important tasks are down-prioritized if they are not evaluated. The project manager is the boss in the project group and is therefore a role model. Whatever the project manager does, and make the team members aware of, will therefore shape the project's culture and with this, the collaboration and the result.

Even in larger companies the senior management's leadership style influences the entire organization, even if it is indirect and less obvious than in smaller companies. The leadership style is often copied by mid-management, thus brought downwards in the organization. The corporate culture is affected by the shape of the decision-making processes and control systems.

## VALUES AND ATTITUDES

The work atmosphere is crucial for the end-result. The result will only improve when everyone has fun carrying out the work. It is important to respect the value of each and everyone in the group. The project manager should try to be open to dissimilarities to increase the possibility of learning something new and seeing new opportunities.

Values are formed in a learning process. If a certain value is established in practice, recognition has been confirmed and thereafter this value will be a part of the fundamental assumptions. Faith in the project manager and the other members in the project group is a prerequisite for good and rewarding cooperation. The members cannot experience great difference between words and actions or that communicated values and actual procedures are not aligned.

Project managers must from the very beginning be clear of in which direction the project should move. Everybody in the



► Our values are the foundation on which our attitudes and behaviors are based.

project group can decide if this is something they want to participate in and contribute to, or if they want out. Unambiguous values are the project managers' main instrument to transform established strategies into actions.

Questions that a project manager should be able to answer:

- What is the current situation in my organization?
- Are there any obvious values in my organization that affect my project?
- Which are the core values?
- Are the values consequent or contradictory depending on who I ask?

### Expose the Values

Many people are of the assumption that it is difficult to chart values in an organization. But it does not have to be this way. By using different processing tools it is possible in just one working day, to analyze and reflect the needs expressed by the employees. It is important to bring forth shortcomings in the organization to create a common platform for further development of cooperation. The management needs to be informed about what is perceived important by the staff to be able to decide what needs to be done.

Some areas to consider:

- Stress
- Communication
- The individual
- Cooperation
- Conflicts
- Ethics and morale

The employees' values' need to be compared to and connected to the organization's official values, if there are any pronounced. Do the employees understand the management? Do the values pronounced by the management reflect those of the employees?

The analysis should lead to a plan of action where activities are planned down to the individual's level. All employees in an organization are responsible for their own situation. It is not very beneficial to complain of ignorant bosses and disengaged co-workers.

## TEAM RULES

Attitudes often express or suppress the individual's fundamental standpoint. A tough attitude often suppresses insecurities or work as a shield against being distressed or disappointed. It is possible to influence which attitudes should prevail in a project. The questionnaire on the following page is very helpful in visualizing attitudes.

Start the exercise by letting the team members individually evaluate the rules. Compare answers and agree upon a joint answer for every rule. It is during this discussion the team members' different viewpoints and interpretations become evident, which is beneficial insight for everyone in the group. When all questions have been worked through and the group has reached a collective understanding which it supports, it is time to choose the rules of conduct which are to be the guiding stars of cooperation and collaboration in the project.

Statement	Completely agree	Partially agree	Uncertain	Partially disagree	Completely disagree
1. The group should choose a leader or chairman who can lead the group's work and discontinue time-consuming discussions.					
2. The participants will learn more and better through open and honest discussions on each other's behavior in the group.					
3. Work will be more effective and beneficial if every team member has a special task to stick to.					
4. When disagreeing in the group it is better not to show emotions, and keep strictly to business.					
5. Those who speak should learn to stay quiet and those who are silent should learn to speak up.					
6. Everybody should be involved in the decision-making process. Minority and majority solutions should be avoided if possible.					
7. A team member's feelings are as important to discuss as actual knowledge or facts.					
8. Silence gives consent if opinion is not voiced in due time prior to decision being taken.					
9. Everybody should have an opportunity to speak and express opinions until they feel they have been understood.					
10. It is better to agree on a compromise than discuss an issue the group disagrees on.					
11. Misunderstandings are best avoided by rephrasing each other's statements.					
12. When one person in the group has more knowledge on a specific subject, this person should be allowed to dominate.					
13. The best way to learn how to be a team worker is to practice and apply the methods and theories the experts have deemed best.					
14. In case roles are to be distributed among team members, these should be passed around for all to try.					
15. Everyone should feel free to bring up questions on the team work, even if this might be perceived disturbing and cause unpleasant discussions.					

SOURCE: INSEAD BUSINESS SCHOOL



## KICK-OFF

There might be reasons for having several meetings during the initiation of the project work. The best time for these vary depending on how much of the project has been prepared before it is presented to the project manager, and when the project resources are to be allocated.

There are a couple of initiating meetings where it is appropriate to get as many of the team members together.

These meetings are:

- Kick-off
- Planning meeting

The purpose of a kick-off is to establish the project's objective and goal with those who are part of the project, but even with important prime stakeholders.

It is an excellent opportunity to delegate work tasks and generate collective enthusiasm within the group during a kick-off. It is also an opportunity to establish a mutual perspective on how the project should be executed.

A kick-off can be carried out as a meeting or a conference, preferably off company location. It cannot be stressed enough how important it is not to be too cost-conscious by saving money and time, by having this kick-off on company premises. If everyone is disciplined and turn off their cell phones and do not slip out to take care of "urgent matters" in the middle of the meeting, then perhaps it might be possible to make it work. But history tells us this is not possible. The daily work in the office almost always takes precedence over project meetings. The continuous interruptions infringe on the preparations by lack of mental attentiveness in the participants. It costs a lot of time to start over again and again; time which could have been utilized in a much better way.

So, take your group and travel to a place where you can work undisturbed. Nothing is so important that he or she cannot be out of the office for one day. It is important to take the time to discuss the assignment in detail and to explain what is expected of all participants. When you return to the office everybody should have the same *goal perception*. It is also desirable that the planning phase has been initiated. Everyone participating in the project should preferably take part in the kick-off. Make sure you even invite the client and the project owner to attend the first part of the meeting. To have the project's objective and goal described by the project owner or client is a very effective link in the acceptance process. It increases motivation and generates enthusiasm.





#### Kick-off agenda suggestion:

1. Introduction to the assignment – introduce the client/project owner if he or she is present.
2. Establish the goal – can be done by way of one exercise; “what does the goal mean to me?”
3. Clarify goal and objective together.
4. Concrete team building exercise which brings the project group together.
5. Presentation of all participants – name, background, experience, expectations on the project.
6. Structuring of the project – identify the scope (if a WBS is already found, it needs to be accepted, otherwise now is a good time to let the members prepare the structure through team work).
7. Present the result of the team work.
8. Delegate assignments.
9. Decide on when to report and next project meeting.
10. Finish off the day on a social note.

The above mentioned suggestions can be squared off in one day but it is recommendable to spend two days together, where an evening arrangement is included. The interactions between the participants will be so much more rewarding if it is possible to get to know each other informally. Make sure to plan many breaks and leave time for some R&R during the meals.

There is one disadvantage with the term kick-off in connection with this preparatory project meeting. It often makes you think of sales conferences and other campaign launches where focus is on that year's sales target and how to beat the competition instead of establishing the goal and cooperation within the group.

The competitive approach does not fit in during the preparatory meeting; it can tear the group apart in fact. It is possible though, to have practical exercises where team work is rewarded.

A kick-off to initiate a project is the first step in the process of establishing a functioning team.

## EXPECTATIONS AND DEMANDS

To be demanding is often seen as something negative and controlling, and is therefore not regarded as a positive trait. But by being clear and palpable with the expectations the project manager has on the team and individual employees, lucidity is all around and everyone in the project benefit from this. To place demands is really all about being clear on one's expectations.

We all place expectations on ourselves as well as on the surroundings. We often leave these expectations unarticulated, and we might even be terribly disappointed when these unspoken expectations are not met. The fact that you avoid expressing demands does not mean you do not have any expectations. The sad thing is, they will for always be concealed from others.

If there are any doubts concerning the goal, it is usually a sign of no confidence from the team members. It could be a lack of confidence for the project manager, the management or the organization on a whole. Having no faith in the management will most likely put an end to any spontaneous knowledge sharing.

Transparency is all the more important when the organization is in disarray. The employees will look for signals to have expected scenarios confirmed or dismissed. The less information; the more room for own interpretations. To over-interpret the smallest signs is a common mistake. The project manager has to explain why some goals need to be achieved and what happens if they are not, and how this affects the client or the organization and thereby also the project group.



#### Kick-off agenda suggestion:

1. Introduction to the assignment – introduce the client/project owner if he or she is present.
2. Establish the goal – can be done by way of one exercise; “what does the goal mean to me?”
3. Clarify goal and objective together.
4. Concrete team building exercise which brings the project group together.
5. Presentation of all participants – name, background, experience, expectations on the project.
6. Structuring of the project – identify the scope (if a WBS is already found, it needs to be accepted, otherwise now is a good time to let the members prepare the structure through team work).
7. Present the result of the team work.
8. Delegate assignments.
9. Decide on when to report and next project meeting.
10. Finish off the day on a social note.

The above mentioned suggestions can be squared off in one day, but it is recommendable to spend two days together, where an evening arrangement is included. The interactions between the participants will be so much more rewarding if it is possible to get to know each other informally. Make sure to plan many breaks and leave time for some R&R during the meals.

There is one disadvantage with the term kick-off in connection with this preparatory project meeting. It often makes you think of sales conferences and other campaign launches where focus is on that year's sales target and how to beat the competition instead of establishing the goal and cooperation within the group.

The competitive approach does not fit in during the preparatory meeting; it can tear the group apart in fact. It is possible though, to have practical exercises where team work is rewarded.

A kick-off to initiate a project is the first step in the process of establishing a functioning team.

## EXPECTATIONS AND DEMANDS

To be demanding is often seen as something negative and controlling, and is therefore not regarded as a positive trait. But by being clear and palpable with the expectations the project manager has on the team and individual employees, lucidity is allaround and everyone in the project benefit from this. To place demands is really all about being clear on one's expectations.

We all place expectations on ourselves as well as on the surroundings. We often leave these expectations unarticulated, and we might even be terribly disappointed when these unspoken expectations are not met. The fact that you avoid expressing demands does not mean you do not have any expectations. The sad thing is, they will for always be concealed from others.

If there are any doubts concerning the goal, it is usually a sign of no confidence from the team members. It could be a lack of confidence for the project manager, the management or the organization on a whole. Having no faith in the management will most likely put an end to any spontaneous knowledge sharing.

Transparency is all the more important when the organization is in disarray. The employees will look for signals to have expected scenarios confirmed or dismissed. The less information; the more room for own interpretations. To over-interpret the smallest signs is a common mistake. The project manager has to explain why some goals need to be achieved and what happens if they are not, and how this affects the client or the organization and thereby also the project group.

## THE TRIP TO LØKKEN

Margrethe and Henrik and their three kids, Fredrik, Joachim and Mary, are all vacationing in their summer house in Jylland. For the fourth day in a row it is raining. All the games have been played over and over. Everybody is bored, even aunt Benedikte who is visiting for a week.

The teenager Mary suggests they take a drive to Løkken to have lunch and go shopping. Nobody argues, so off they go. Daddy drives the old Volvo. It is pouring and the car's ventilation system cannot keep the steam off of the windows. The journey takes almost one hour, which is more than enough time for the younger ones to start a fight.

On arrival in Løkken they all enter the local department store, the only one in town. They look around, buy a few "nice-to-have" things and decide to have lunch. The food is almost as boring and gloomy as the surroundings and Fredrik and Mary cannot stop arguing. It is a quick lunch. What to do now? There is nothing else to do than go home.

On the way back to the house the car breaks down. Margrethe yells at Henrik who has not had the car serviced before the summer vacation. Henrik feels like he has sacrificed himself for the others. Joachim exclaims he would have rather stayed at home fishing. Aunt Benedikte is upset because the day is ruined and she would rather have spent it home knitting. Mary informs everyone that it is certainly not her fault that they are all stuck in the woods in a broken-down car. She dislikes it when the others argue.

Henrik and Fredrik wait for the tow truck and the rest of the family takes the bus home.

*Nobody is pleased and everybody feels disillusioned... Why?*

**CAUSE:** The message was delivered in a way which allowed the group to be passive. Everyone tried to live up to what they thought were the others' expectations, without actually finding out what the others really wanted.

The decision to go to Løkken was taken on false consensus. Add to that a group of people with different interest brought together under difficult circumstances.



## Project Planning

5

To plan a project entails working out time and resource plans, calculate costs, organize work and analyze risks. The project manager's job is to supervise that this is done.

Planning takes time, but this is well spent time and comes back to you during the execution phase. The company management's or most immediate boss' responsibility is to allocate this time. The time schedule is a central part of the planning process and with a project tool in place this can easily be kept up to date.

### ORGANIZE THE PLANNING

PROJECT PLANNING is mostly done during the planning phase. But planning is required even during the project's execution and closing phase because of changes and new prerequisites which could not have been foreseen at project start. Project planning is de facto choosing a strategy, in other words which path to take towards the goal.

Examples of tasks during the planning:

- Prepare detailed time and resource plans.
- Set up the project organization.
- Plan the project's funds.
- Specify the project's activities on quality requirements.
- Establish communication infrastructure.
- Analyze risks and complete risk response planning.
- Set up agreements with the project's contractors.
- Plan the project's final evaluations.

You found an example of a project preparation guideline in chapter three. This guideline can even be applied during the planning phase.

### Establish an Overview

The point of the planning is to establish an overview of what has to be done and in which order. The plan should eventually lead to a schedule which is the baseline for the follow-up during the execution. Without a plan it is difficult to assess where you are, i.e. if the project will reach its goal on time. The plan is also a communication tool in the process to introduce the objectives of the project in context, and a proposal for allocating resources.

Make it a habit to plan the implementation and project closure from the very start. This will give everybody who is part of the project, and those who will benefit from the result, time to prepare. Resources might need to be allocated and other projects that are affected might need to be notified.

### Planning Meeting

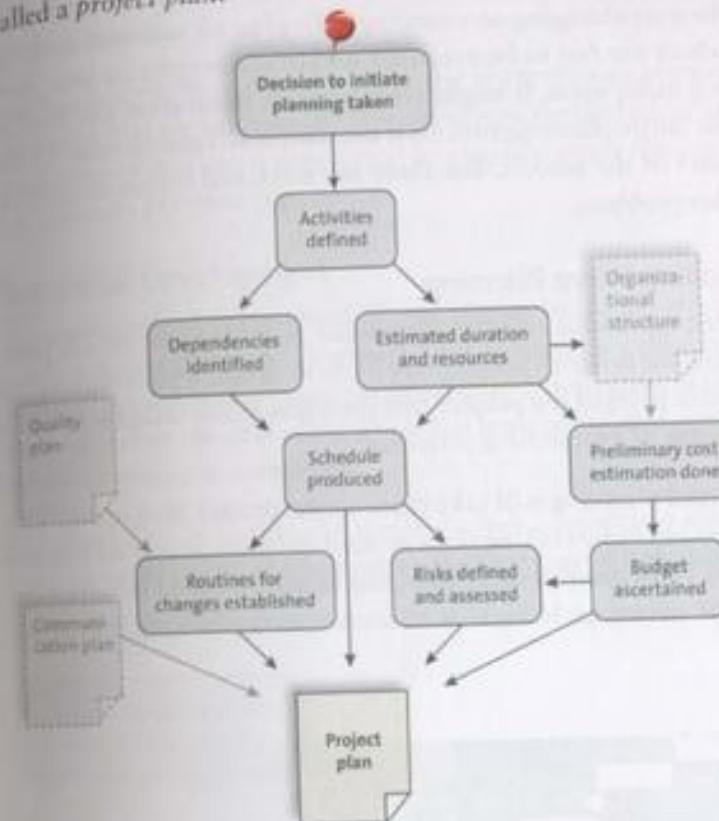
Experience tells us that the quality of the process increases if those who are to do the tasks are involved in the planning. The risk of miscalculating the time and resource needs are minimized, and the produced plans are of much better quality. The planning should guarantee that the project will reach its goal on time. Delegate as much work as possible during the planning phase. Project managers are not expected to be involved in every detail. The participants are chosen for the competence they hold and the project's needs, after all.

If the project group is assembled for the first time in connection with the planning, it is especially important that the project manager brings everybody together for an initial meeting where prerequisites and foundation are presented. The project manager's work is optimized if all documents are collected in a pre-study report which is distributed to everybody in due time before the meeting.

Besides from initiating the planning, the meeting should also be used to get everyone acquainted with each other, and to decide which rules and norms should determine the cooperation.

## THE PROJECT PLAN

All the project's planning is collected in a document which is called a *project plan*.



► Project plan process

The project plan is first and foremost created for the project owner, but it should even be understood by a new project manager, if the project, contrary to all expectations, were to change manager. It could be you getting the assignment to head a project someone else has planned.

If the same individual who has been in charge of planning the project is in charge during the execution phase, the project plan can be settled during the preparations. But if a new project manager is introduced during the execution phase it is important to let this person evaluate the plan and make changes which he or she deems necessary, to take responsibility for the project execution. If the latter is the case, the plan will most likely not be settled upon before the execution phase is initiated.

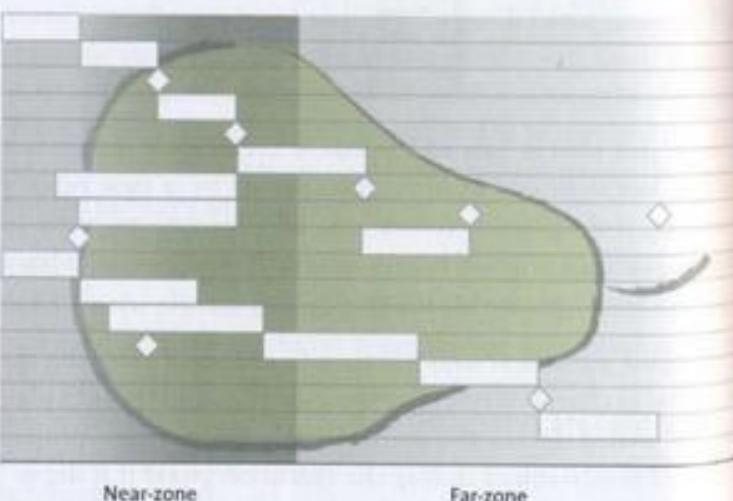
## PLANNING METHODS

Is it appropriate to plan the whole project in details right away? No, that is often just a waste of time. Projects are shaped by the ever changing surroundings. To plan all activities in detail which are not to be executed within six months or later does not make sense. It might even diminish motivation and faith in the entire planning process if the plan is already obsolete by the start of the project. But there are ways and means to get past this problem.

### Rolling Wave Planning

One method is called *rolling wave planning* and entails planning the project's preliminary parts in detail, while allowing the latter parts of the project contain a few major milestones and a couple of overarching activities.

Detail planning will take place as the project progresses. This way any events taking place around the project, and within, and any consequences therefrom, can be incorporated into the plan. The advantage being that all unnecessary planning is avoided.



► Pear-shaped model.

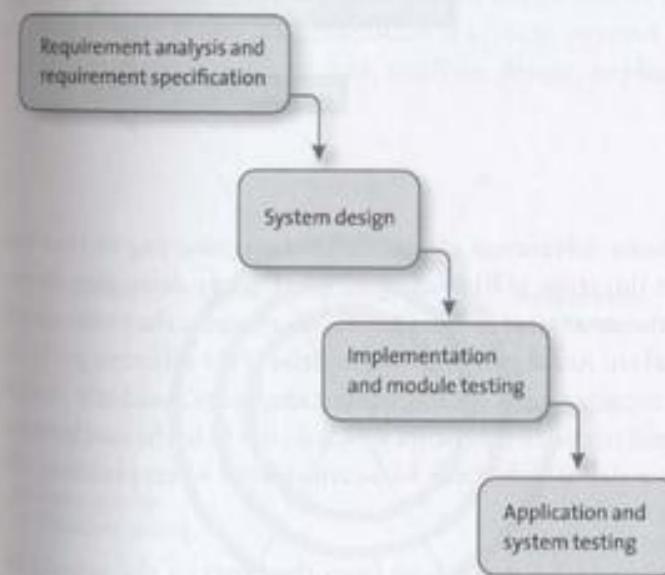
A disadvantage with the rolling wave planning is that it is not possible to assess the exact costs since all activities and resources are not planned.

But this is actually acceptable since the uncertainties around these activities are substantial. To compensate for the lack of an exact cost-estimation, it is practical to coarsely assess the cost, e.g. based on previous experiences.

### Sequential Development

To sequentially develop the different phases in the project is a very risk-free method. This method is sometimes called the *waterfall model*, and is based on passing from one phase to the next only when the preceding phase has been completed, until the whole project is completed.

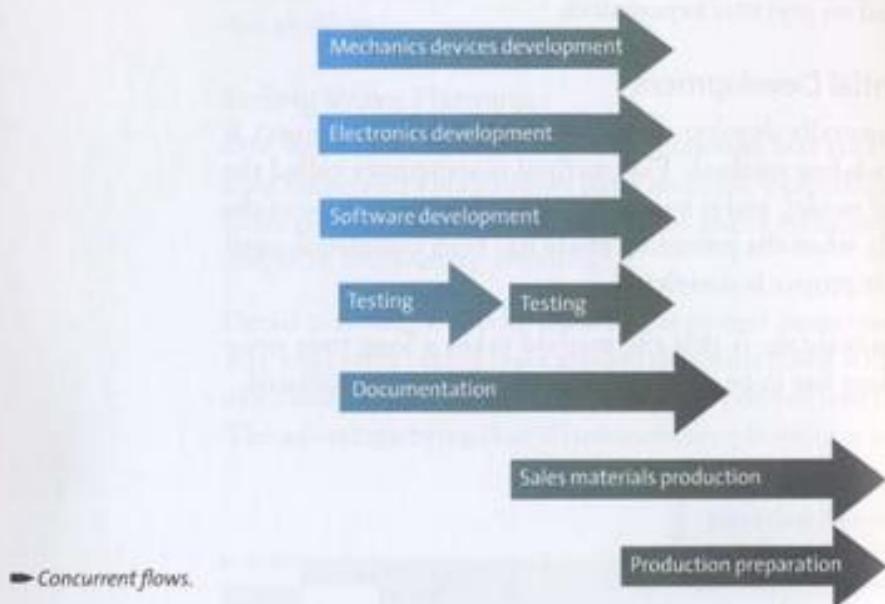
The disadvantage is that the method takes a long time since every phase has to be verified before the next can be initiated.



► The waterfall model.

## Concurrent Engineering

There is a lot of time to be saved by advancing different parts of the project concurrently. This is not an unusual process in many product development projects. Mechanic devices can be constructed while electronics and software is built simultaneously. Everything is then integrated into a prototype which is tested before the project proceeds.



The major advantage of *concurrent engineering* is that the project duration is limited. The more parts done simultaneously, the more time saved. One disadvantage is the pronounced risks taken. Acute problems might arise if the different parts do not fit together, or if the electronics engineers suddenly realize they need to add components which do not fit in the mechanism. This is a risk which needs to be considered when planning the project.

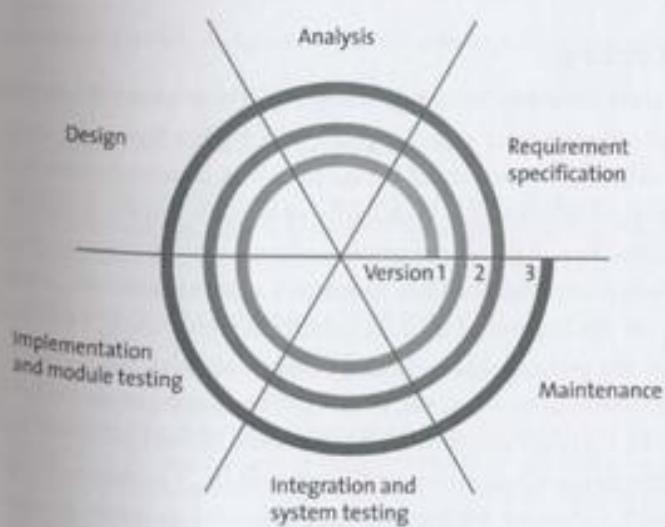
The risks can be minimized from the onset of the project by scheduling frequent meetings, where progress is reviewed and proposed changes are discussed.

## Dynamic Development

There are projects which are started without knowing what the solution will be. The solution will become apparent while the result of the work materializes. It is advantageous in these types of projects to break down the assignment in smaller parts or phases.

It might be difficult to produce a requirement specification for such a project. The freedom this methodology yields, to choose an approach before a solution is defined, places great demands on follow-up procedures and management. The project process has to be quality assured through follow-up meetings where achieved results are tied to the functional specification and the business impact goal. Compare this to the argument previously in the book regarding projects with incomplete requirement specifications.

*Dynamic development* is a fine example where use cases are advantageous. Lately several models on dynamic development have evolved. Some of these are incremental development, the spiral model and the *Dynamic System Development Method*, DSDM which are built on the execution happening in stages, so called increments. The execution is a cyclic process which usually consists of requirements, analysis, design, implementation and testing.



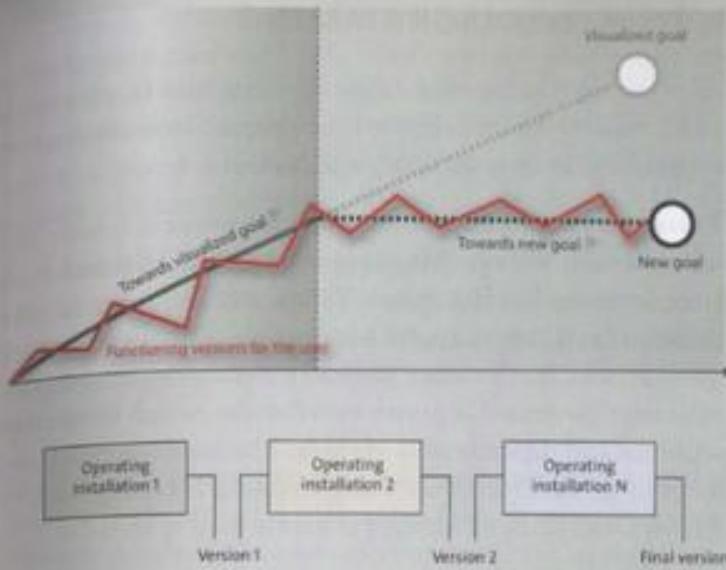
► Spiral model.

The success factor in the DSDM is based on bringing the client into the project, make frequent verifications and deliveries. It is a methodology which was produced in the 90's as a counter-reaction to the leading waterfall method which was considered unwieldy. The project's running time is dependent on every iteration being partitioned into three phases: brief investigation, refinement and consolidation, which usually takes two to six weeks. Incremental development is also known as an Agile method.



## Time Boxing

It is called *time boxing* when using a method which divides the project into separate time periods, which each have own deadlines. What is not delivered in one time box is moved to the next or removed all together. Gradually new goals are set in upcoming boxes based on experience and new requirements which have been appended. This method's advantage is its strong focus on management and its adaptability to changes in and around the project. Incremental delivery enables the sub-results to be utilized early on in the project. The disadvantage is that it might be difficult to control the outcome of the end result and what the project's duration and costs will be. The methodology demands a sponsor with great flexibility and courage.



## GOAL SEEKING PROJECTS

Most project models presuppose that projects can and should be goal oriented; irrespectively of looking at it from a business or project perspective. It is also assumed that the goal can be broken down into plans and deliveries. But what to do when it is unclear how, and if it is possible to achieve the wanted business objective and product goal? There is a clear and wanted objective to aim for, but the road-map is missing. Here are a couple of examples where it might be difficult to plan meticulously:

A comprehensive pre-study carried out as a separate project.

When it is obvious that prerequisites and presumptions will change successively.

When several approaches exist and it is not known which one is most ideal.

A promising idea or new possibility to be tested.

Goal Seeking Projects is the name of a new method developed by Kent Lagerquist at the Swedish company HiTeach, which aim is to reach a mature long-term vision. The detailed plan has been replaced with strategies and time boxes. The results are unexpected and unplanned, and demands new work methods and creative cross-functional project teams who cooperate in the midst of positive chaos.

The goal seeking project form and the Agile work methods go well together. The ideas behind e.g. Scrum and DSDM are not new, but the usage will probably follow the increasing changing pace in society at large, just like our own learnings in every project. An evolutionary lean development with extremely short cycles for every increment appears to be a feasible approach. But perhaps most important is the fact that it is straightforward and easy to get started.

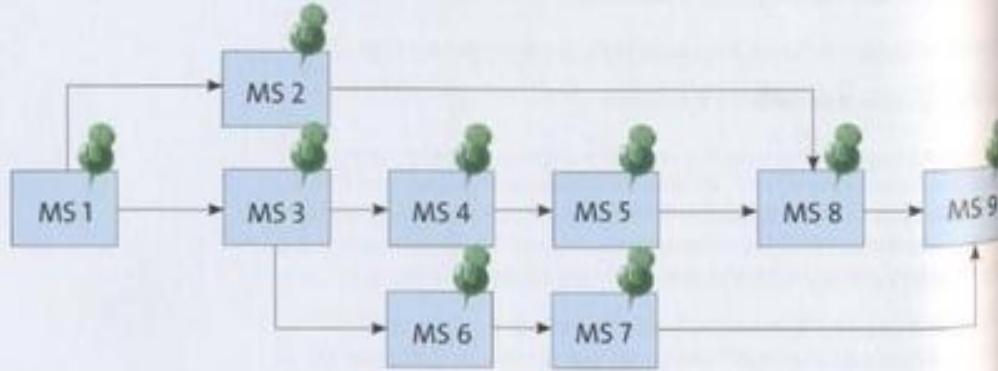
## NETWORK DIAGRAMMING

When using a *network diagram* the structure of what and in which order tasks are to be done is displayed. Network diagrams are made up of boxes, arrows and nodes.

There are two methods of constructing network diagrams. They are called *Precedence Diagramming Method*, PDM and *Arrow Diagramming Method*, ADM. The former illustrates activities in boxes, and dependencies between the activities are shown using arrows. In the latter method the activities are presented as arrows connected at points called nodes, which illustrate the sequence and dependencies of these. The most commonly used method is the Precedence Diagramming Method, while the Arrow Diagramming Method is hardly used at all today.

The milestone plan is the simplest type of network diagram. It only contains milestones and dependencies. The network diagram has no duration schedule, only dependencies between the milestones.

Milestones which are found in the same flow (arrow) must be completed in the logical order they are presented, while milestones in parallel flows can be completed independently of each other. An alternative name for the milestone plan is the *log diagram*.



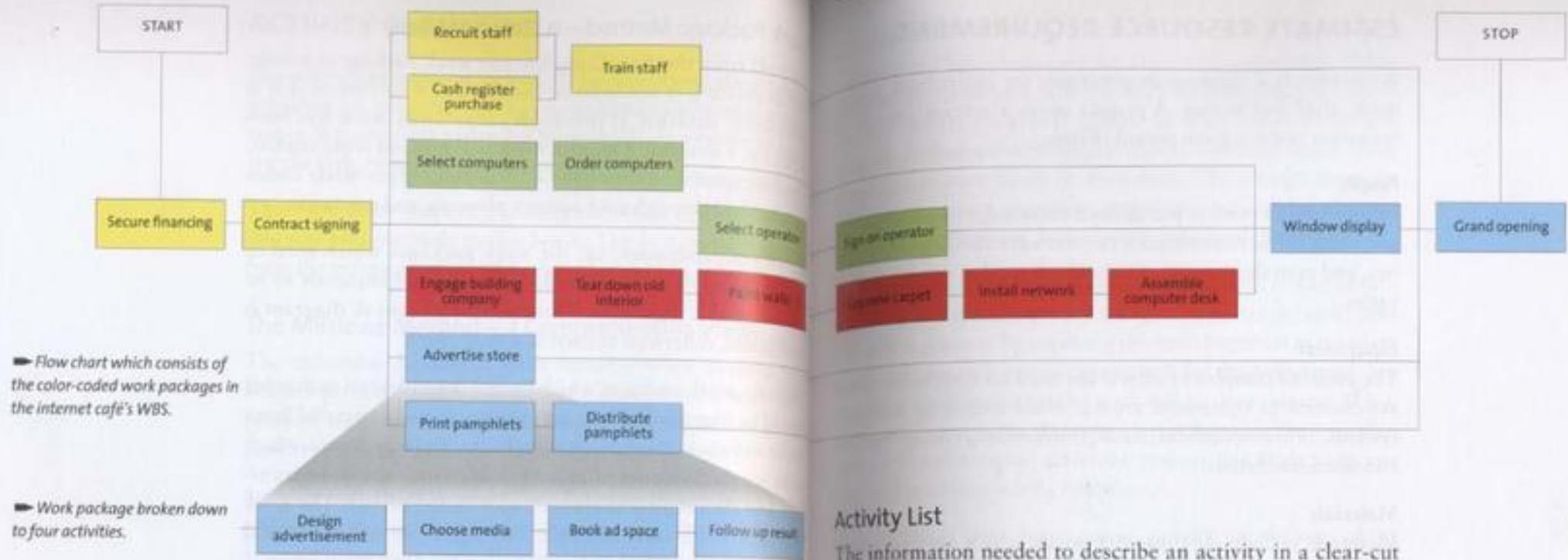
► Milestone plan.

As previously mentioned milestones are markers on the way between project start and finish. They are points which purposes are to help and validate the overall health of the project during the execution. A milestone is a clear and identifiable event which has to be achieved. A milestone, by definition, has zero duration and takes no effort to achieve.

A milestone plan should be kept simple to provide an overview of the project. Therefore, such a plan should not consist of more than approximately 20 milestones. If needed, it is recommended to divide a complex plan into several minor plans, so called *sub projects*.

The milestone plan makes a splendid foundation when communicating how the project is to be carried out. It is not, however, sufficiently detailed to be used as a foundation during the execution. A further break-down in activities is needed.





Distinguish between work packages and activities. A work package usually contains several activities which are needed to achieve the result. The work package should therefore be broken down yet one level to include the necessary activities. It might be appropriate to divide the work package **Advertise store** into activities called **Design advertisement**, **Choose media**, **Book ad space** and **Follow up result**.

The borderlines between different organizational divisions, groups' or resources' responsibilities need to be synchronized to secure that the handover of activities work out. Use the flow chart's color-coded work packages to identify these borderlines. When all activities are in place it is time to place the milestones in the activity plan. This is to be able to ensure the project's progress.

Finally, inspect the result against the overarching milestone plan from the pre-study. Adjust the milestone plan and/or activity plan if they do not correlate.

### Activity List

The information needed to describe an activity in a clear-cut way might be somewhat comprehensive. This means it will be cramped and muddled if this information is added directly into the network diagram. It is recommended to make a separate **activity list**.

ID	Activity name	Description	Duration	Dependency	Resources	Responsible

ID – activity identification number.

Activity name – what the activity is called.

Activity description – specification on work to be done.

Duration – calendar time of activity, or start and stop time.

Dependency – connections to preceding activities or milestones.

Resources – competence, equipment or materials needed to complete activity.

Responsible – person or project role responsible for activity being completed.

The activity list is the basis for the time and resource planning. It should contain necessary information on resource requirements, time estimation and dependencies for every activity.

## ESTIMATE RESOURCE REQUIREMENT

A resource is a common denominator for individuals, equipment, time and money. A project needs a certain amount of resources under a given period of time.

### People

People need to possess pre-defined knowledge to complete the given tasks. The requirements vary between the different activities, and even the number of individuals needed simultaneously varies.

### Equipment

The project's complexity affects the need for equipment. What are counted as equipment are e.g. office locations, computer systems, office equipment, tools, instruments, transportation and accommodation.

### Materials

Materials include all consumer goods which are being used by the project or needed to produce the project's product or to build prototypes.

### Time

Time as a resource is the labor hours utilized in the project. It might also be the time the project can spend using computer systems and work locations. Time as such is not a resource, only when assigned to a resource.

### Money

Money is needed to pay for the resources; people, equipment and materials.

## Resource Management Plan

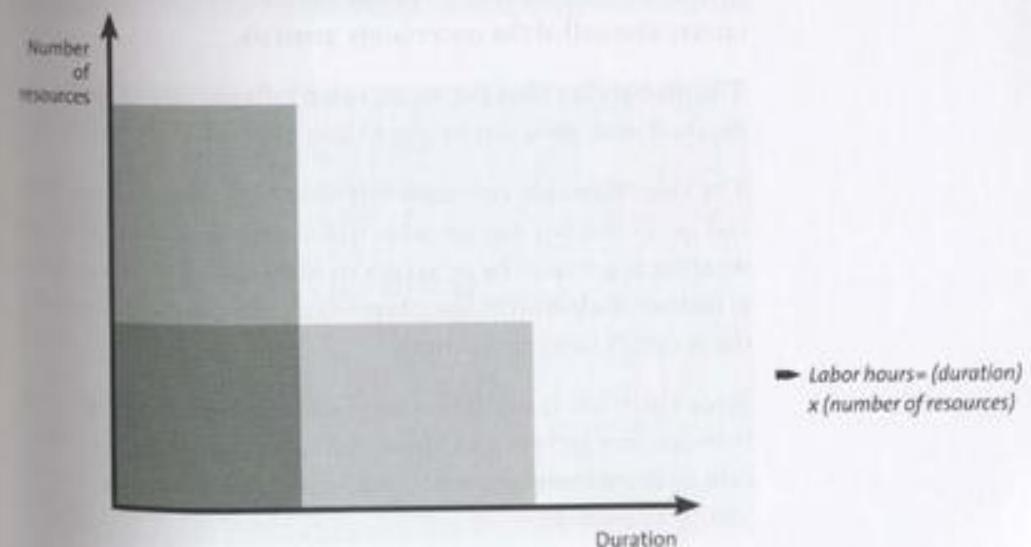
It is the project manager's duty to see to it that the resource requirements for every activity is specified and listed in a *resource management plan*. This plan thereafter makes up the foundation for the budget and *resource procurement*. The resource management plan also affects the planning. It is not until the activities have resources assigned, that the final schedule can be ascertained.

### Duration Estimates

Duration and labor hours are not always the same thing. When the time to complete a task has been ascertained it is important to consider the actual number of labor hours which will be spent. Differentiate between duration and labor hours, often expressed as man-hours or man-days. The project manager must also consider vacations, training, unscheduled absence and the team members' assignments outside of the project.

Every activity's labor hours is assessed separately. It is an advantage if the individuals who are going to complete the tasks take part in this process. By involving the team members in the planning it will not only create engagement for the assignment, but also build confidence that the work will be done on time. If you have contributed to the planning, thus influencing the time allocation on your assigned activities, you are less likely to escape your responsibility during execution.

The calculated labor hours for an activity are the sum of the activity's duration multiplied by the number of resources needed. Having more resources to complete a task usually does shorten the activity's duration, but not indefinitely. Every activity has a limit where it no longer pays to assign additional resources.



It is not effective to burden an individual 100 percent or more during longer periods. This is not good for the person's health nor the result she is producing.

80 percent is probably the limit in practice. The same goes for equipment and machines which have to be time scheduled in every detail to avoid bottleneck-effects, which causes overruns and delays.

If the resources are exhausted the consequences are much bigger than just a loss of time. It is therefore also necessary to plan non-productive periods.

### Mathematical Methods – The Lichtenberg Technique

To assess the labor hours in tasks which are to be executed, is in practice very difficult unless you have access to data from previous projects, or have own or others experience to rely on. All estimations contain some amount of uncertainty. The Danish professor Steen Lichtenberg has defined a method which takes all this into consideration. This method is also called the successive principle.

The method involves placing uncertainties on all labor and cost estimations, on top of an estimation of the probable value. Minimum and maximum values indicate the range of uncertainty, also called the uncertainty analysis.

The probability that the mean value falls outside of the range min and max must not be more than one percent.

The time schedule estimation is based on assumptions, official or unofficial, e.g. on who will carry out a task, how the weather is going to be or access to resources. The uncertainty is further dealt with in the parts which are most significant for the project's total uncertainty.

Since there are many unknown factors in a project the range between min and max will be significant. The project's *completion date* and total costs will not be a mean value, but a probability assessment.

$$T_{\text{expected}} = \frac{T_{\text{max}} + (3 \cdot T_{\text{probability}}) + T_{\text{min}}}{5}$$

where:  $T_{\text{expected}}$  = calculated mean value

$T_{\text{max}}$  = estimated max value

$T_{\text{min}}$  = estimated min value

$T_{\text{probability}}$  = estimated probability value

$S$  = standard deviations

The numbers three and five in the formula are constants.

Actual outcome for estimated time and value for the activity lies within the interval:

$$T_{\text{actual}} = T_{\text{expected}} \pm 2 \cdot S$$

With 95 percent probability.

where:

$$S = \frac{T_{\text{max}} - T_{\text{min}}}{5}$$

### EXAMPLE

Min 10 days	Probability 15 days	Max 25 days
----------------	------------------------	----------------

$$T_{\text{expected}} = \frac{25 + (3 \cdot 15) + 10}{5} = 16 \text{ days}$$

$$S = \frac{25 - 10}{5} = 3 \text{ days}$$

95 percent probability it will take between 10 and 22 days!

If the uncertainty is deemed greater than what the sponsor can accept, activities which have a larger impact on this uncertainty should be broken down into smaller parts and be assessed gradually.

## Simulation

Simulation is a method to test the course of events in advance. By building a theoretical model, usually in a computer, several scenarios can be analyzed and determining factors which influence the project outcome can be found. Calculations made in computers where several parameters are changed, will show how the result is affected. Simulations are useful when assessing the probability of reaching the project goal on time.

During the end of the 19<sup>th</sup> century what was later to be called "Scientific Management" was developed. It became more common to utilize systematic methods when organizing and execution of different work tasks. The front-runners were among others Fredrik W Taylor and Henry Laurence Gantt.

Taylor created the term "task management" in 1911, and he is also considered the architect of the description of functional organization, where work is divided into completely individual functional entities.

Gantt developed methods to graphically visualize the state of a production. He published a so called "progress chart" in 1910 which was used to show how much of the planned production had been carried out in reality.

Originally, the Gantt chart only showed the duration and when the different activities started and finished. The logic dependencies between the different activities were not shown. This was improved in Great Britain in the 1940's when the Gantt chart received its present appearance with the logic dependencies.

## THE SCHEDULE

The project's schedule is an important structuring and controlling tool. It is the most visible proof of how the project will be conducted and is therefore the foundation for follow-up and quality checks during the entire execution phase.

### The Bar Chart / Gantt Chart

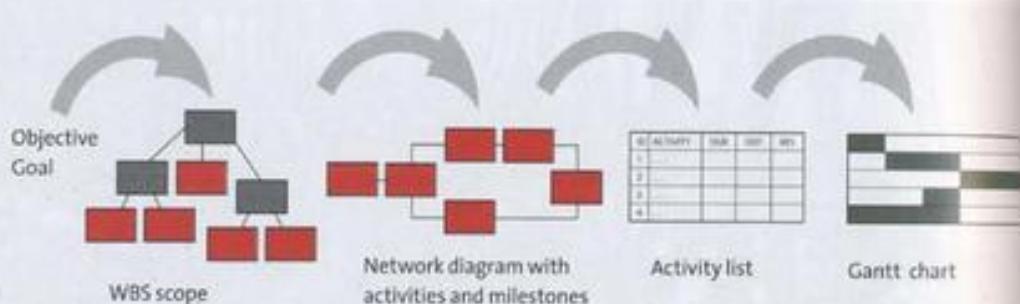
The schedule is an activity plan with a time axis, where activities are specified with duration, start and finish times. The most common method used to display a time schedule is by way of a *Gantt chart*, where the activities are illustrated as horizontal bars and the milestones as markers.



The planning of a project is an iterative process with several phases which are to be executed in a pre-defined order to secure the quality in the planning.

The first thing to do in the planning process is to establish objective and goal, then chart the scope through a WBS to assure that everything needed to reach the project goal is included. The WBS is the foundation for the network diagramming where the project flow is described through activities and milestones.

The activity list is produced from the activity plan where duration, dependencies, resource needs and responsible owners for all activities and milestones are determined. When this has been completed there are good prerequisites for producing a realistic schedule plan to be used during the project's execution.



► Project planning flow.

Create a calendar which shows days, weeks or months, depending on how detailed the planning has been done, based on the activity list or activity plan.

Start by adding the first milestone in the first column. Since a milestone has duration of zero and requires no effort to reach, it is only a checkpoint in the plan. Plot the first activity to start immediately after the milestone. The duration of an activity is shown through allocating the correct number of columns. An activity which is set to take three days will therefore stretch over three columns in the plan. Dependencies are shown using arrows.

ID	Activity name	Dur	Dep	Res	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Project initiation	0			◆																
2	Secure financing	5	1	2										▼							
3	Contract signing	4	2	2																	
4	Financing & contract settled	0	3											◆							
5	Recruit staff	7	4	4																	

► A Gantt chart with two milestones and three activities.

Continue with the schedule by adding activities and milestones according to the pre-defined dependencies in the activity list.

Activities which are dependent on the same predecessor activity or milestone being completed will have the same start date in the schedule. In other words, they are drawn up as parallel bars.

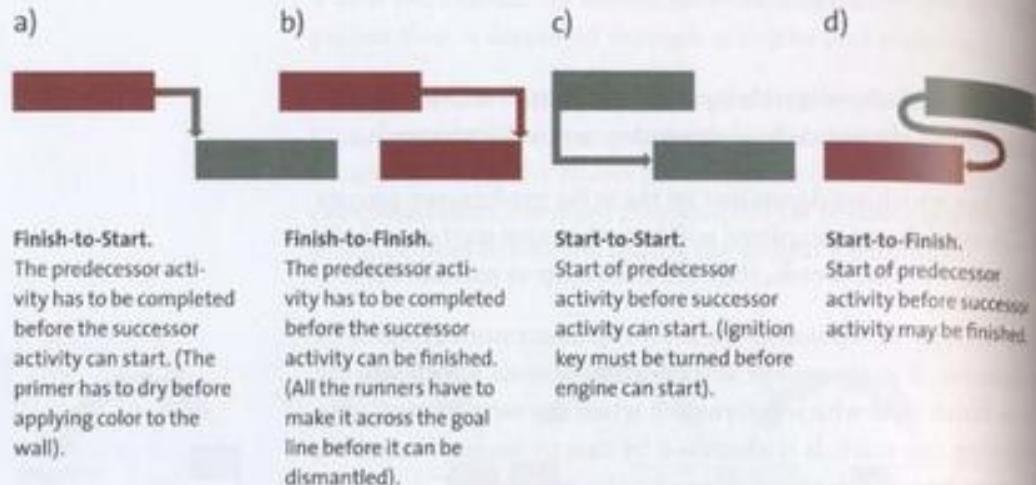
If an activity is dependent on several predecessor activities or milestones, it is always the activity or milestone which has the latest finish date which determines when the next immediately following can start. It is identified by two or more ID numbers listed in the column where dependencies are verified.

ID	Activity name	Dur	Dep	Res	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Project initiation	0			◆																
2	Secure financing	5	1	2										▼							
3	Contract signing	4	2	2																	
4	Financing & contract settled	0	3																		
5	Recruit staff	7	4	4																	
6	Cash register purchase	4	4	2																	
7	Start training	0	5,6																		
8	Train staff	2	7	1																	
9	Select computers	5	4	3																	
10	Order computers	4	9	1																	

► A Gantt chart where three activities, which can all start simultaneously, are marked by red circles and a milestone, which is dependent on two predecessor activities being completed, marked with a green circle.

## Logical Relationships

The dependencies between activities can vary. The American organization Project Management Institute's "A Guide to the Project Management Body of Knowledge" describes four different varieties of dependencies between activities.



### ► Logical relationships.

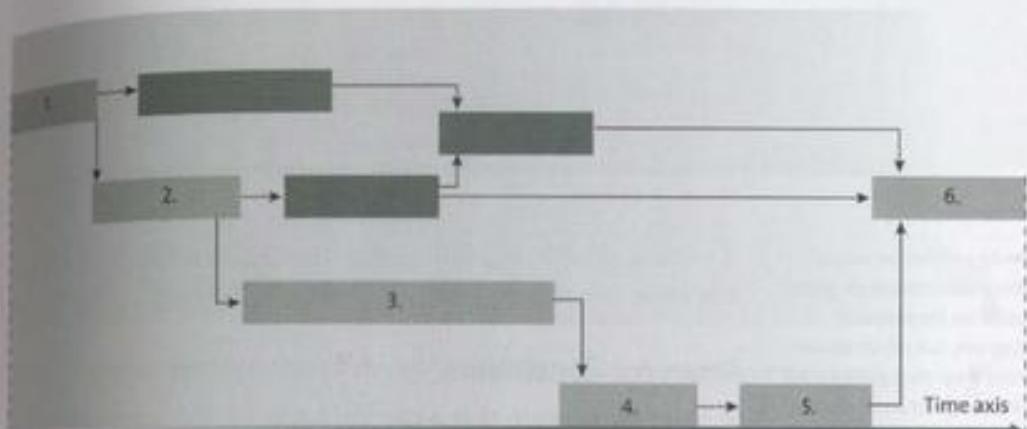
The first of the logical relationships, Finish-to-Start, is the most widely used, while the last one is considered theoretical possible, but is more of a rarity.

## The Critical Path

The *critical path* is the sequence of activities which determine the earliest finish-by-date for a project. The critical path will on and off vary depending on whether the activities are completed before or after what has been planned. Even if the critical path usually is calculated for the entire project, it can also be calculated up to a milestone or a subproject.

If the activity plan holds several parallel flows the total duration of the project will be calculated by adding up the duration of every activity. The longest path from start to finish is the critical path. Since certain activities are inter-connected it is vital to identify these activities. If an activity on the critical path is

delayed, it will affect the entire project. Activities which are not found on the critical path have a certain amount of time they can be delayed without affecting the next activity and/or the project's finish date, so called *slack, float, free float or total float*.



You always need to keep an extra eye on the critical path, but you even need to focus on the second most critical path in the plan.

The project's total duration estimation is accomplished by adding the estimated  $T_{\text{expected}}$  for every activity which is on the critical path.

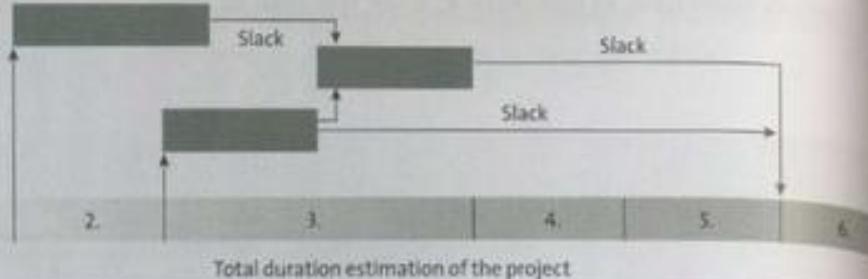
$$T_{\text{project}} = \sum T_{\text{expected}}$$

The standard deviation, which is a measurement of the uncertainty in the assessment, is calculated for the entire project through this formula:

$$S_{\text{project}} = \sqrt{\sum S_{\text{expected}}^2}$$

Total float -  
The amount of time an activity can be delayed without delaying the project end date.

Free float -  
The amount of time an activity can be delayed without delaying the early start date of its successor.

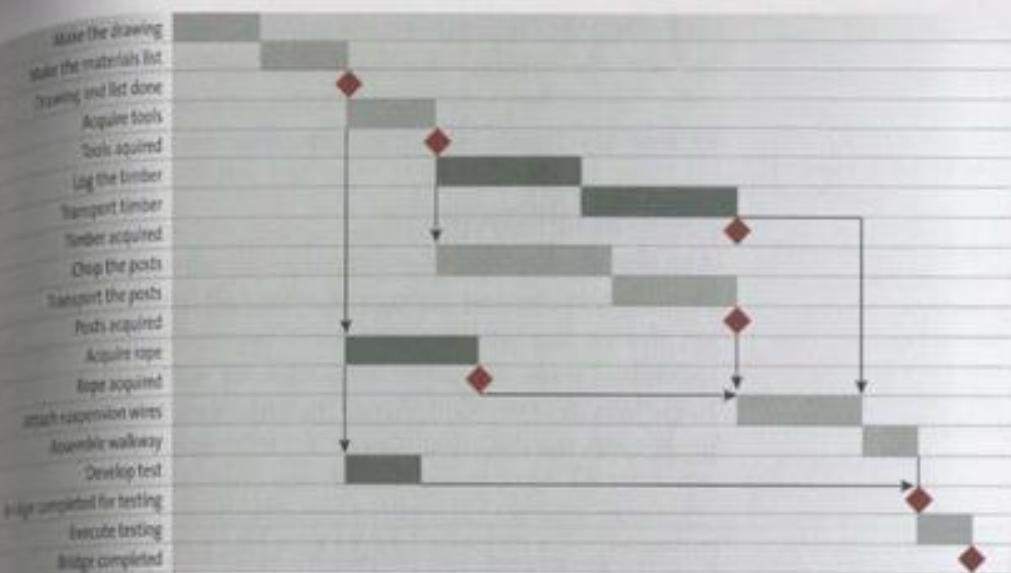
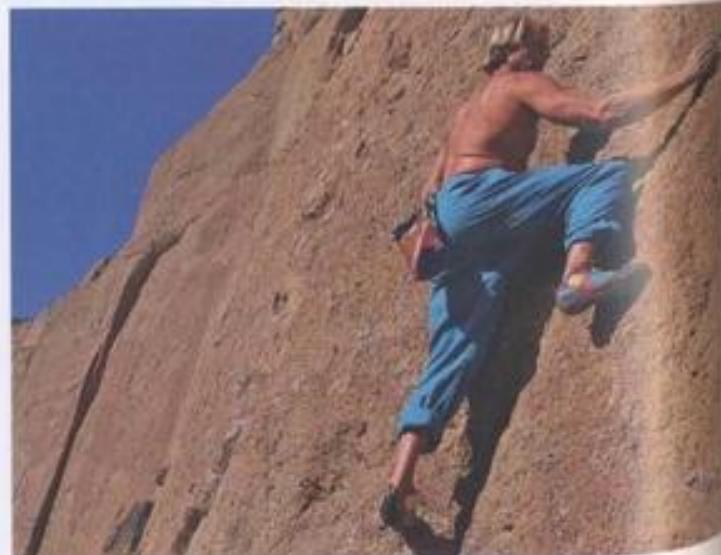


► An alternative way of doing the network diagram based on the previous diagram, but which derives from the critical path. Floats which are not on the critical path are clearly recognized.

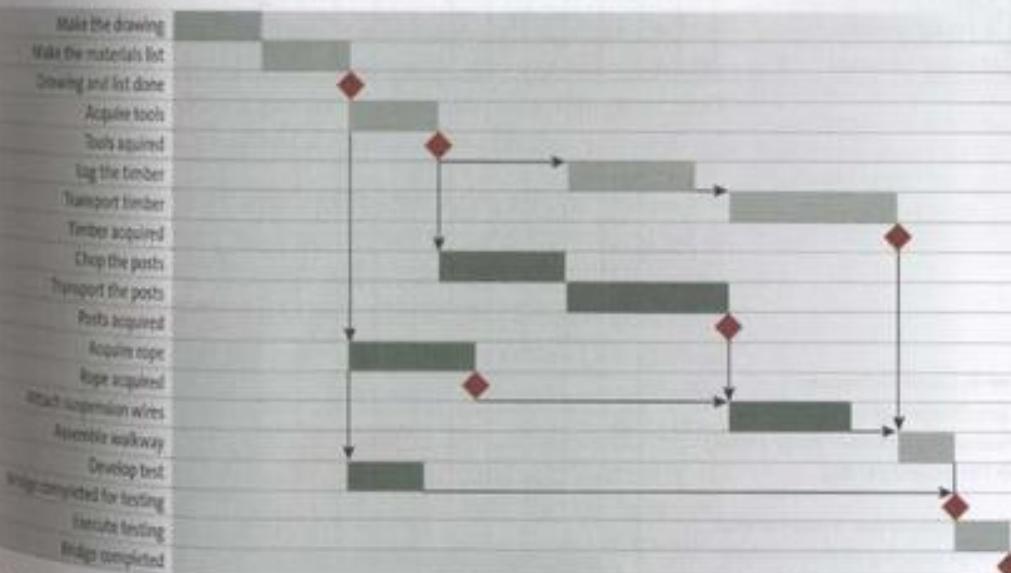
The critical path is usually defined by the activities with a slack less than or equal to a certain value, usually zero.

### Resource Constraints

It is not uncommon that a specific resource, e.g. a person with unique competence, is needed simultaneously in several places in the project. Verify that a resource is not assigned to more than one task at a time. It is your responsibility to plan the limited resources so that they are utilized in an optimal way but at the same time not over-exploiting them.



► "Log the timber" and "chop the posts" are dependent activities since they share the same resources.



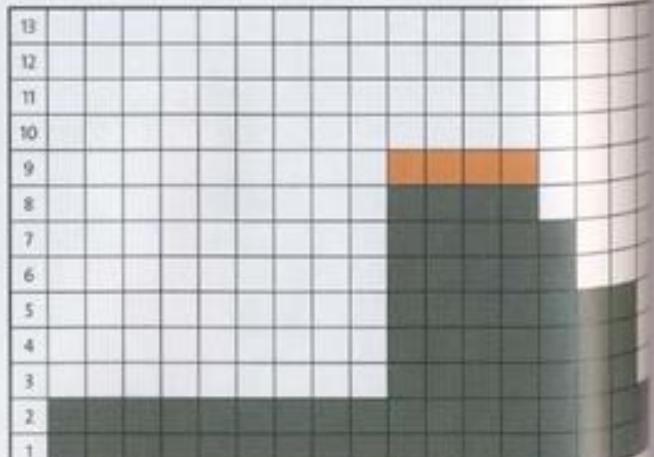
► Plan the project according to available resources. The activities "log the timber" and "transport timber" has shifted in time to avoid resource conflicts. The project will therefore take longer to complete.

Since the latter schedule is now adjusted, the critical path includes the activities "log the timber" and "transport timber". This causes the project's total running time to be somewhat extended, compared to the former adjustment.

### Resource Histogram

Any over-exploitation of resources in the schedule is best found by making a *resource histogram*, where all scheduled resources are shown against the time line. It is possible to account for individual resources in the histogram, as well as the project as its entirety. It is advisable to use the same time scale in the histogram, as in the time schedule.

ID	Activity name	Dur	Dep	Res	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Project initiation	0																			
2	Secure financing	5	1	2																	
3	Contract signing	4	2	2																	
4	Financing & contract settled	0	3																		
5	Recruit staff	7	4	4																	
6	Cash register purchase	4	4	2																	
7	Start training	0	5:6																		
8	Train staff	2	7	1																	
9	Select computers	5	4	3																	
10	Order computers	4	9	1																	



► Resource histogram.  
Specification of number of resources planned in every activity in the project per day.

Over-exploitation is marked with orange coloring. In this example the maximum number of resources allowed in use is eight.

If too many resources are allocated during certain periods in the project, it is advisable to try to balance the resources, i.e. shift activities in time so that not so many are in use simultaneously. Alternatively, try to increase the number by recruiting more resources to the project.

A resource histogram is also an effective tool when sharing resources in different projects. This implies using some kind of planning tool to divide and prioritize the resources between the projects.

It is definitely worthwhile to schedule breaks in the plan to gather strength and preserve equipment. But it is usually not easy to get permission to schedule marginal time. This is something the project manager often has to fight for with the project owner, who is in charge of the resources.

### Resource Share Allocation

It is not unusual that an activity has duration of one week, but only takes a few days to complete, or that two human resources working part-time share an activity. This is not obvious from the time schedule when activities are displayed on bars regardless of whether they need a full-time or part-time resource. It is often necessary to clarify this by adding so called activity information where it is specified exactly how many of the resources are allocated. It is also a possibility to state percentagewise next to the activity how much of a resource is needed.

If there is no need to know which activities a certain resource is working on, but only how much time he or she is scheduled to work, there is a much simpler method available. By color-coding the activity information schedule it is possible to see if a resource is overstretched or if it is possible to add more tasks. This method gives a comprehensive view of how many resources are available and when, something which is necessary to know for any responsible resource manager.

### "Sharpen the saw"

Two teams of lumberjacks were each assigned an area of forest to clear. Both teams jump-started early in the morning.

Team one worked all day without breaks. It made headway in the beginning, but as the day progressed it became more and more exhausting for the team. The afternoon's result was not at all as impressive as the same morning's advancements. When nightfall came the team had not managed to log all the trees in its assigned piece of land.

Team two had planned the work differently. Team two worked as intensively as team one, but regularly took breaks; 10 minutes every hour throughout the day. During the breaks team two also sharpened the saws. By nightfall team two had logged all their trees, despite having worked less time in total compared to team one.

## Schedule Adjustment

Slack is the duration with which an activity on a non-critical path can be delayed from its start, without affecting the project's finish-date. Slack is a calculation of the amount of flexible time in a project and can be regulated as the project proceeds and changes are made in the project plan. Slack is also called float.

Activities which are not on the critical path can be shifted in time. The total time margin which exists in the work flow of one activity, in relation to the critical path, will decide how much earlier or later the activity can be planned to start.

$$\text{Total time margin} = \Sigma \text{Activity on the critical path} - \Sigma \text{Activities on actual work flow path}$$

Do not exhaust the margins too much. Make sure to keep a part of the margins on non-critical activities so not to jeopardize the project by delaying it.

Certain activities are delayed due to external factors which the project manager cannot control. This can e.g. be delivery times of orders, scheduled maintenance of equipment or the setting and drying times in a building project. These are all factors which influence when the next activity can start. These unavoidable delays are called *lags*.

The time two consecutive activities in some cases overlap is called a *lead*. One example of an overlap is activities with a "finish-to-finish" dependency. *Crashing* is a method used to analyze and choose the most cost-efficient measurements of compressing the project's total duration.

## Front and Back Loaded Projects

It is possible to choose to plan all the major resource and time consuming activities either early on in the project planning or late. These are described as being front loaded and back loaded. This is based on how the accumulated costs are ultimately distributed.

The advantage of a front loaded project is that it yields solid control over the work to be done. An early warning indicates

on possible difficulties which might lead to delays and increased costs will become apparent. The disadvantage with this method is that major costs have to be taken by the start of the project, which generates capital costs. A project can also be of such nature that it is inopportune to focus on a specific solution too soon in the process, which might be deemed unusable later on due to external factors.

Due to the rapid technical advancements in many lines of businesses it might be wise to wait with certain major factors. In this case, a back loaded project is preferred. It is also positive that the bigger part of the costs lies later on in the project.

Nevertheless, I do not recommend planning major activities at the end of a project. The consequences of a delay during the last part of the project are, more often than not, greater since the possibility of influencing anything is complicated and the delivery date is rapidly approaching.

## The Baseline

When the schedule is ready and approved it should be frozen as the *baseline plan* for the project. It is through comparison with this plan that the project is followed-up during the execution phase. The baseline plan is used as a reference plan for approved changes and their implementation.

## Sub Projects

Large and complex projects can with great advantage be broken down into smaller projects to be planned separately. A sub project is a unique project, which is controlled by the principal project. The sub project has a specific and timed goal, a project manager, who is usually called sub project manager, and own resources. The principal project's project manager is the sub project's sponsor.

To break down a project in sub projects is applicable when projects comprise of many different factors or sub phases, which are to be executed similarly. One planning can be used to execute several comparable events.

## PROJECT TOOLS

A project does not need to be comprehensive or complex to benefit from a *project tool*. But a tool in itself does not solve the planning in itself. The tool is just a way of illustrating the project to make it easily understood by others. A plan created with a tool is easy to interpret for most people with a little bit of training.

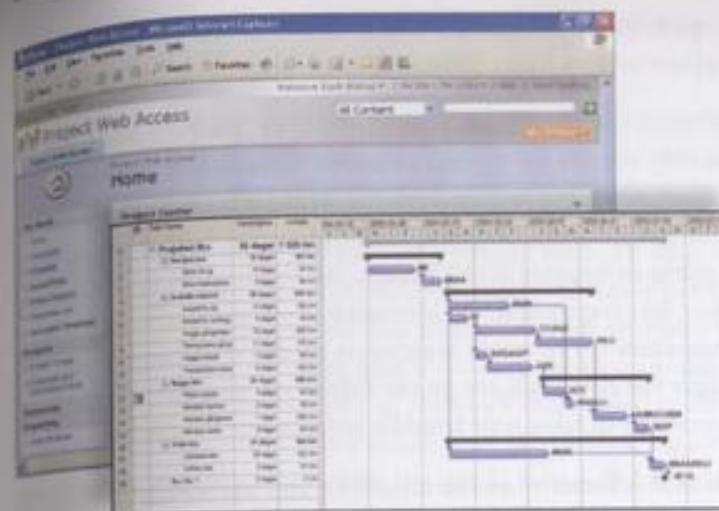
The development of project tools sped up in connection with the IT-bubble's burst in the beginning of the 21<sup>st</sup> century, when companies were forced to achieve more with fewer resources. Optimizing usage of the resources available was a priority; thus to create more and better value for the company. The management needed better insight into the different projects and how the resources were utilized.

Project tools can be small and adapted to handle a specific project in an independent client-server, or they can be large and complex and handle several projects in a communal database. Irrespectively, whether it is a tool adapted for one or all projects in an entire organization, it is all about gathering information which is often scattered in numerous documents, in one place which is easy for all to find and use.

With a project tool it should be easy to carry out the following tasks:

- Set up new projects.
- Plan activities – specify duration and resource requirements.
- Calculate costs and plan the budget.
- Assign resources, roles and responsibilities.
- Follow-up completed activities and actual hours worked.
- Generate and extract reports.
- Handle subject matters and documents.
- Remove closed projects.

Project tool sales are increasing. It cannot just be seen as a sign of more projectized businesses and organizations out there, but even that the tools have reached a wider field of use. But it is



easy to choose project tools when there are so many to choose from.

When shopping for a project tool which suits the present needs, it is an idea to study what the web-produced project support tools can offer, e.g. Projectplace International or create a SharePoint site in a Microsoft Window Server. The functionalities in these services are continuously developed and improved upon, just like the traditional project tools.

When the decision to implement a project tool has been taken, it is advisable to proceed with caution. Implement the functionalities step by step. Start with a pilot project and evaluate the effect before applying the tool full-scale on all projects.

To succeed in implementing a project tool you must have the management's support and you must elicit involvement in the users. If the management does not have any intentions of demanding the tool being used in all projects, there is no point in wasting time and resources in implementing one. The risk is otherwise that the management will be under the assumption that you have more control than what you actually do, when only a few of the project managers in a company is using the tool. One of the finer points of the project tools is that the management can monitor what the employees are working on. This elucidation of the company is not always appreciated, which

► Microsoft Project Professional is a good example of a competent and flexible project tool which has gained wide support. The graphic presentation of the schedule, the Gantt Chart, is probably what most people associate with Microsoft Project. But, like most other project tools Microsoft Project can do so much more.

Microsoft Project is found in two versions, Office Project Standard for individual users and Office Enterprise Project Management for work groups. Through a web-based product, the resource responsible and other managers can oversee the human resources across all projects. Microsoft Project is integrated with other Office products. Project activities are shown in the calendar view in the email program Outlook, and users can update information from Outlook. With the so called Workflow functionality the Project can support different processes and with Notifications it is possible to automate event and activities.

is one reason why there is a lack of enthusiasm for an IT-based support system like a project tool.

Information should only be entered in one tool to be subsequently shared by several systems. Financial accounting and project planning is based on the same information about the same people and resources. While planning tools describe what is going to happen in the future, the financial system describes what has happened. As demands and competition increase companies try to reach maximum return on all resources. The bigger the demands are on the follow-up and control, the more important to have user friendly project tools available.

No tool is better than the efficiency and knowledge held by the people who use it and the quality of the information fed into the system. To implement a project tool does not yield any guarantees of becoming a better project manager, or that projects are more successful. It is important to know what and how to do things and use the tool to its best capacity. A metaphor which comes to mind is to believe that by buying a car and reading the manual it is possible to drive safely. In the traffic as well as in projects it is necessary to study and practice the methodology. In other words, it is necessary to excel in making project plans manually, before implementing project tools. But with the right prerequisites in place it is possible to increase efficiency while improving the quality of work.

It is possible to create a nice looking schedule in e.g. Excel, but it is rather doubtful whether there is any value in it during the execution phase. As soon as changes have to be made problems will occur. If you add or remove an activity, change the duration or resource assignment you also have to make sure all dependencies to other activities and milestones are updated. The control over this manual worksheet will rapidly disintegrate. It will be difficult to see the project in its entirety and to establish the consequences for the company if yet another project is being started.

The strength in project tools is that the planned dependencies between activities are fixed. A change in one activity results in succeeding activities and milestones being changed accord-

ingly. It is therefore immediately known which consequences one change will have on the whole project.

Most tools have built-in supervision which will alert the user if attempting to exploit resources or exceed deadlines and delivery dates.

The calendar is an essential part of a project tool. To succeed with a realistic time schedule it is necessary to know which timeslots are available and not due to e.g. leave of absences or other reasons. Every resource ought to have an own calendar where special information on e.g. terms of employment; does he or she work part-time, how much time is available for new assignments and how much time is already scheduled in other projects, or ordinary line work. Hourly cost and other overheads connected to the resource is also important information. Remember that the term resources also mean tangible resources, like hardware, equipment etc.

**► Examples of analyses prepared in the project tool Primavera which is first and foremost tailored for detailed time schedules and follow-up on activities on all levels, Primavera is useful when running individual projects, but is used to its full potential only when running several parallel projects which share resources.**



The outline and the planning are alleviated if there is access to everyone's calendars through the company's email system.

### Analyze and Report

Analyzing current status of a project is greatly facilitated when using a project tool. A project does not need to be significant in size, nor be on-going for a long time, before the information to be collected is of such volume that it is simply not possible to do it manually. It facilitates the interpretation of the current situation when complex information is visualized graphically. The more straightforward the information is the more useful it becomes.

## PROJECT MANAGEMENT

Planning

Execution

Closure

# Budgeting, Risks and Quality

6

Calculating and budgeting are important areas to master in order to know what projects will cost and how the costs are distributed on different activities.

To identify, analyze and mitigate the risks in projects is a part of risk management. The purpose of risk management is to ensure that the project will reach its goal.

The project's quality control encompasses the processes that are needed to guarantee that the project fully cover the needs for which it was initiated. Quality management involves everybody, but it is ultimately the senior management's responsibility. Changes during the project's different phases should be handled in a systematical way.

### PROJECT BUDGETING

THE CUSTOMERS should make money on the project's result, e.g. the sale of produced products. The contractor should make a profit on the project through the development of a product, the building of a property or in connection with the installation of a system.

Ultimately, the customer suffers from the contractors' potential inability to deliver according to agreement. If the customer is informed about problems early on in the process, the possibilities of taking appropriate measurements increase.

It was understood by the 15<sup>th</sup> century that to succeed in business cash or financial credibility, adept accounting and proper internal control on all business levels were required. The same goes for projects of today.

Methods for financial accounting and management have developed as the need for managing businesses have increased.

Double-entry accounting, originally described as the Venice Method by Luca Pacioli in 1494, facilitated the management of businesses and organizations of considerable size.

The double-entry accounting required each transaction to be accounted for twice, once debited and once credited. Through this, it was possible to control where the money came from and how they were used. Modern accounting is based on this 600 year old method.



## Project Calculation

When detailed schedule and resource planning exists it becomes relatively simple to calculate a project's cost, and to make a preliminary calculation. If the duration and cost for every activity is known, multiplication and addition is all that is required.

Usually some of the costs are from externally purchased goods and services, which are consumed in the project. For a fair follow-up it is advisable to differ between *project costs* and *product costs*.

The former are resource costs during the project, while the latter are costs for materials when producing the product, i.e. the project's result. The cost of producing prototypes and pre-production is usually a part of the project costs.

There are two ways of calculating the cost of a project; namely *total absorption costing* or *job costing*.

Total absorption costing indicates that the project has to take all its costs, both relating directly to the project's costs and a reasonable amount of the company's indirect costs.

It is difficult to determine a fair share of the indirect costs. Some projects have to carry an unfair share which might result in the project being deemed unprofitable. Other projects carry too few costs. Work efforts and other resources should be fairly appraised, as much as this is possible.

Job costing implies that a project is only burdened with the specific costs which arise when the project is executed. The overhead costs have already been absorbed by other projects and will as such not affect whether the new project will be carried out or not.

## Top - Down

A crude assessment of the costs based on knowledge gathered from similar, but different projects.

## Bottom - Up

Detailed cost estimates in which detailed estimates are made through analysis of every single activity in the project.

Job costing is useful when prioritizing between various actions. The alternative which generates the most *contribution* should be picked. It is sometimes, under special circumstances, possible to choose not to contribute to the company's overhead costs. This could e.g. be through utilizing idle capacity in production during low-season. It is in that case possible to carry on a project as long as its contribution is positive because of the situation.

<b>Specific revenue</b>	The revenue which comes from executing the project.
<b>Specific costs</b>	The costs which comes from executing the project.
<b>Contribution</b>	Specific revenue – specific costs

### Preliminary Estimate

Start with the schedule and estimate the cost for every activity. Do a cost assessment on the planned resources and multiply these with the time they are needed.



### ACTIVITY COST ESTIMATE

Activity:		Activity ID:	
Project:		Activity end date:	
Activity start date:			
Own resources/Project group:	Cost per hour including general payroll tax:	Hours:	Total:
Project manager			
Sub-project manager			
Administrator			
Specialist			
Specialist			
			Sum total:
Purchased external services	Cost per hour:	Hours:	Total:
Consultant			
			Sum total:
Office space and equipment	Cost per week:	Weeks:	Total:
Office lease			
Equipment, IT etc.			
Equipment rental fee			
			Sum total:
Materials	Cost per unit:	Quantity:	Total:
Consumption			
Consumption			
			Sum total:
Investments	Costs:	Depreciation:	Activity burdened by:
			Sum total:
Travel expenses			
Mileage allowance, parking			
Tickets, taxis			
Accommodation			
Subsistence allowance			
			Sum total:
Capital costs	% per week on actual work done and expenses		
Sum total on calculated activity costs =			

► Estimate model which include different cost estimations that might arise during the execution of an activity.

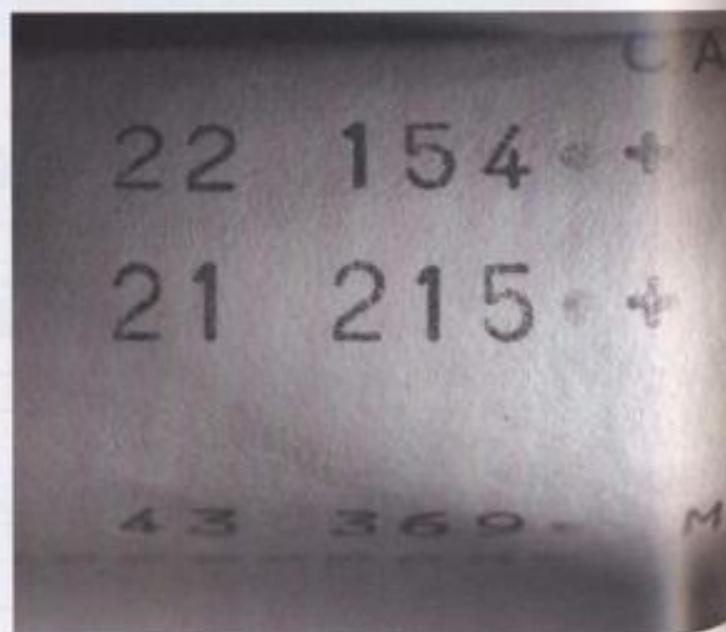
## PROJECT COST ESTIMATE

► The project's total costs are identified by adding all costs for all activities.

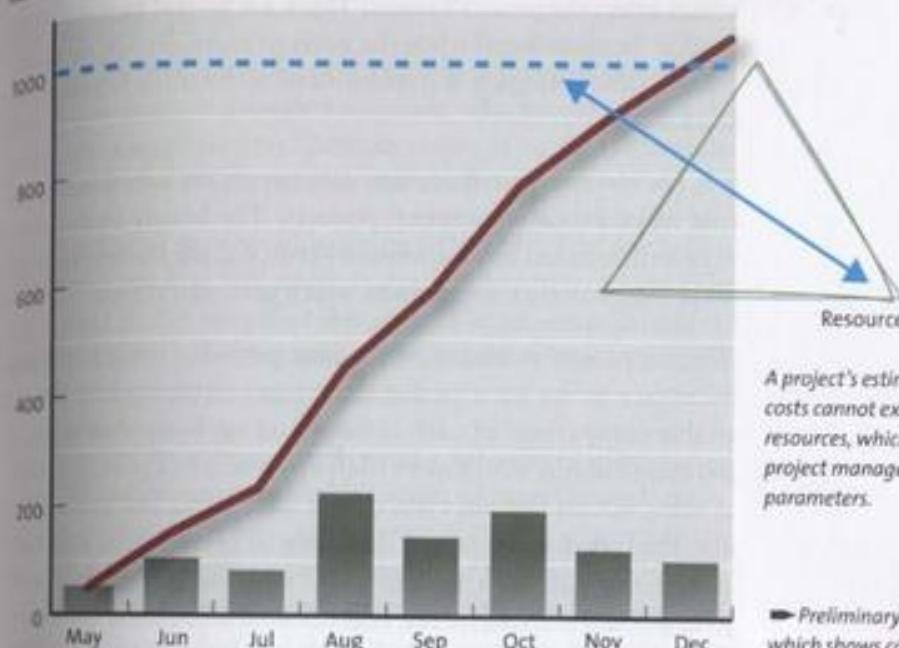
#### Accrual-basis Accounting

The preliminary estimate should be done by accrual-based accounting and be illustrated in a table or perhaps graphically as a curve to be used during project execution. The schedule and the estimated activity costs are important sources of information when doing accrual-basis accounting.

The resource histogram also gives a good picture of the distribution of project costs over time. The periods where the project is using many resources are also the periods where the largest costs are taken. The cost curve usually follows the resource histogram's peaks and valleys.



Month	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planned Value								
Calls	50	100	80	220	140	190	120	100
Accumulated	50	150	230	450	590	780	900	1000



*A project's estimated final costs cannot exceed available resources, which is one of the project management triangle parameters.*

► Preliminary estimate which shows costs per month as well as accumulated costs.

A graphical presentation of the preliminary estimate which is shown above is usually called the *S-curve*, also known as the cost baseline.

#### Preliminary Estimate and Available Funds

The result of the project estimate should be corresponding with the existing financial funds. If the costs for the planned activities are higher obviously a problem will occur. This de facto means that the project has a lack of financial resources and this requires fixing. The estimates are e.g. either adjusted by finding cheaper resources or the project has to be reevaluated from the start and a new plan to reach the project goal has to be set up.

If this is not possible the project manager must ask for a bigger budget or permission to reduce the scope of the project, i.e. change the goal. The budget and the preliminary estimate has to balance when the project starts, any which way.

## Uncertainties

There is always an amount of uncertainty in connection with the cost estimate. Interest rates might change; increased costs for the consultants' fees and slow progress are examples of events which affect the project's result. There are several factors which need to be considered when the costs of a project are assessed. Among other things, it is imperative to realistically evaluate the work efforts.

It is not obvious that the hourly labor costs are based on actual cost when executing internal projects. The hourly costs might very well be based on an alternative cost, e.g. the income revenue from a consultancy assignment which is turned down.

When a project stretches over a long period of time it is often necessary to set up a performance measurement baseline to enable comparison of cash inflows and outflows over time. A payment today is worth more than a payment in a year. Not only missing out on interest rates due to alternative placement, but also the fact that the money decreases in value due to inflation. *Net present value* is a method which takes all this into account. Receipts and disbursements, regardless of when these occur, are discounted and adjusted to the value they would have by the start of a project. This method is used in capital budgeting to analyze the profitability in investment projects.

## PROJECT RISK MANAGEMENT

*Risk management* is a structured approach which consists of *risk identification*, a *qualitative risk analysis*, a *quantitative risk analysis*, *risk response planning* and *risk mitigation*. The first four of these are dealt with in this chapter, since these are areas which need to be closely controlled before the project execution starts, while risk mitigation is dealt with in connection with the execution.

In this chapter we will deal with the term *contingency reserve*, which is a financial and/or time buffer for unforeseen expenses.

It might be a wise decision to look at how the risk management was handled in previously executed projects. Have a look at what was identified, how it was evaluated, what kind of response planning was made and how occurring risks were mitigated.

### Risk Identification

Through the risk identification possible *risk events* are identified. A risk event is a single happening which might affect the project in a negative way. Brainstorming is an excellent technique when identifying possible risk events.

It is an iterative process identifying risk. The SWOT analysis is considered the first risk analysis during the preparations. The better part of the identified threats and weaknesses should be met by skillful planning which eliminates or minimizes the impact of these threats and weaknesses.

E.g., it could be choosing a less risky solution or eliminating a lack of competency within the project group through training and education. The schedule should also be adapted to the executing organization's strengths and external possibilities. Some threats and weaknesses can probably not be mitigated. These are to be noted and documented together with the risks which emerged during the planning.



When identifying the risks it is advisable to use as many sources as possible, e.g.:

- the project charter
- the WBS
- the situational analysis – SWOT
- the requirement specification
- the chosen solution
- time and resource estimates
- resource and staffing plans
- stakeholders' risk tolerances
- concurrent projects within the organization

It is recommended that risk events are categorized, well define and represent current risk sources within the business, industry or area of application.

## EXAMPLES OF RISK CATEGORIES

- Technique, quality and execution risks – e.g. new technology, unrealistic goals, change of technical platform or performance.
- Project management risks – e.g. poor time and resource allocation, pitiful quality of the project plan, weak management of the group.
- Organizational risks – e.g. inconsistency between quality, time and resources, a lack of prioritization, unclear financing and resource overlap with concurrent projects.
- External risks – e.g. change of laws and rules, labor disputes, change of ownership, national risks and the weather.

SOURCE: PMBOK® GUIDE, PMI

## Qualitative Risk Analysis

The qualitative risk analysis deals with the probability of a risk event actually happening, and the consequences this will have on the project. The *mini risk method* is a simple tool to use. Both probabilities and consequences are evaluated and rated on a scale from one to five, where one is the lowest and five the highest.

The *risk value* is calculated by multiplying "probability" with "impact". The project manager will decide which level should result in risk response and which risks he or she will include on a watchlist for future monitoring.

The client has the ultimate responsibility to decide what should be done based on the results of the qualitative risk analysis.

Probability	1	<20%
	2	
	3	50%
	4	
	5	>80%
Impact	1	Low
	2	
	3	Medium
	4	
	5	High

## The Mini Risk Method

Risk	Probability 1 to 5	Impact 1 to 5	Risk value $P \cdot I$	Risk Response
System too slow.	2	2	4	
Resource shortcomings externally.	2	5	10	Set up contract.
Resource shortcomings internally.	4	5	20	Allocate resources well in advance.
Employees need training.	3	3	9	
Immature technology.	4	5	20	Study alternative solutions. Plan for more tests and evaluations.
Patient scanning system not sufficient enough.	3	4	12	Seek quotations on new equipment.
Low acceptance with users.	4	5	20	Inform in advance on purpose of project. Educate users.

P = Probability    I = Impact

A responsible team member must be appointed for every risk response identified, and it should be decided by when the risk response should be mitigated. Another way of illustrating the project's risk level is by inserting the risks in a matrix where the axes represent probability and impact. The numbers represent the risk values.

► The qualitative risk analysis on a project which will introduce a new database for medical samples. Any risk event with a risk value above 10 should be mitigated. If the risk value is 20 or above the mitigation should take place before project starts. Risk events with an impact of 5 should be monitored even if the probability of occurrence is low.

Risks which are found in the top right corner of the probability and impact matrix have to be responded to via risk response planning, and the same goes for all the risks with high impact values.

### Quantitative Risk Analysis

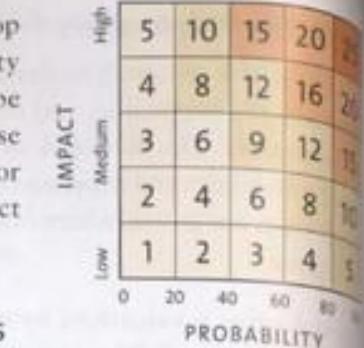
Risk events which are of top priority due to a massive impact on the project or other reasons, might need more analyzing. Perhaps what is needed is a more exact evaluation on the chance of reaching the project's goal or staying on schedule and budget. Certain risks might even work in collusion. The cause and effect diagram and the expected monetary value technique are useful tools in this situation.

It is often necessary to know the risk events' influence on product quality and calendar time and not only the value of the risk. To include these parameters the mini risk method has been expanded to evaluate the consequences in three dimensions, or for each of the parameters in the project management triangle with three different risk values for each risk event.

The matrix shows an excerpt of a maxi risk analysis.

Risk	Probability 1 to 5	Impact 1 to 5			Risk value $P \cdot I =$			Risk response	
		Q	T	R	Q	T	R		
Delay due to lengthy contract negotiations	3	1	4	4	3	12	12	Minimize risk through using standard contracts	
Resource overlap with concurrent project	1	1	4	4	1	4	4	Unambiguous resource planning	
Delays from contractor	3	1	4	3	3	12	9	Add penalty clause to contract	
Unclear limitations from start	5	3	3	2	15	15	10	Revise project plan when limitations are established	
Immature technology	3	3	1	1	9	3	3	Accept - no risk response	
Small market	4	4	1	1	16	4	4	Accept - no risk response	
Users have low technology maturity	3	4	1	1	12	4	4	Accept - no risk response	
Insufficient budget	3	4	3	1	12	9	9	Discuss with sponsor	
Sum total =					71	63	49		

Q = Product quality T = Calendar time R = Resources



One of the *maxi risk method's* strengths is that it clearly illustrates which of the project's triple constraints have the highest risk value. In the example below it is quality which is causing the most concern, which is quite important information for this project where quality has the highest priority.



► *Lodbrok – an unplanned risk event in the Stockholm Toll Road Project.*

It is difficult to think that any of the involved parties in the planning and execution of the Toll Road Project during the winter of 2006 could imagine that the project could be jeopardized by the pontoon crane *Lodbrok* colliding with a bridge carrying the majority of the north-south traffic in Stockholm. This is a fine example of a risk that could not be planned for or evaluated. Even the Swedish Rail Administration's project to upgrade the shunts by the central train station was affected since the pontoon crane was scheduled as a resource in their project plan.

It is imperative to have a time and budget reserve in order to handle risks like these, i.e. a contingency reserve.

A risk response should:

1. Be adequate for the risk level.
2. Be cost efficient.
3. Transpire at the right time.
4. Be realistic.
5. Be accepted and approved.
6. Be executed by a accountable person.

Strategy for risk responses:

- **Avoid risks** – change the project plan to eliminate or protect the project from the risk impact.
- **Transfer risks** – transfer the risks to a third party, e.g. an insurance company.
- **Mitigate risks** – alleviate impact of identified risks by introducing responses that reduce the risks' probability and/or consequences.
- **Accept risks** – no change of project plan despite identified and residual risks.

SOURCE: PROJECT GROUP – ZHM BUSINESS SCHOOL

Remember that risk response planning costs money. Make sure there is a margin in the budget for this.

### Contingency Response Planning

To have a contingency reserve is a way of mitigating consequences of cost and/or schedule risks. The method is often used with a succinct term, e.g. schedule reserve or budget reserve to further elucidate and explain in detail which risks are included.

## PROJECT QUALITY MANAGEMENT PLAN

The *project quality management plan* consists of *quality planning*, *quality assurance* and *quality audit*. Quality planning is dealt with in this chapter, while assurance and audit will be dealt with in connection with the execution.

The quality definition is decided by the client. The experience of quality has to at least match the expectations. It is the stakeholders, first and foremost the end users and those who are affected directly by the project, who decide whether the project was a success or not.

What the project goal and the requirement specification says is less important if the expectations are not matched. It is therefore important to actively manage the project's stakeholders to ensure that they all have a balanced view and understanding of the project and what is to be delivered.

The regulations on quality management are described in the International Organization for Standardization's Guidelines ISO 9 000 and ISO 10 000. There is a specific standard on quality project management; ISO 10 006.

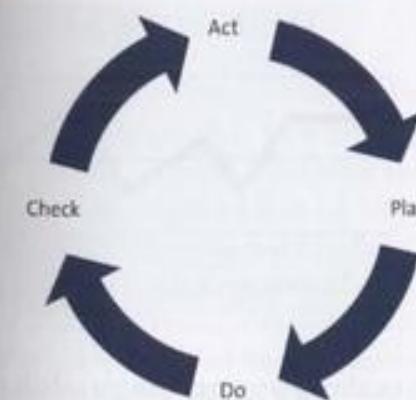
It is cheaper to avoid mistakes than correcting mistakes. This is why it is well worth while the trouble to get things right from the beginning by preparing thorough quality planning and work. Also referred to as "prevention over inspection".

This viewpoint should permeate the entire project and all the work done in it, so it is therefore important to take the time to



analyze and plan the work before the start button is pushed. The quality of the execution and the result will almost always be better if there is a carefully prepared plan to stick to, work is done in a methodical way and everything is documented along the way.

Quality work is an iterative process throughout all the project's phases and follows the cycle below: **Act – Plan – Do – Check**

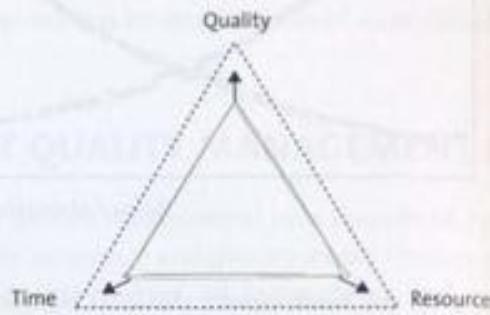


► The act-plan-do-check cycle

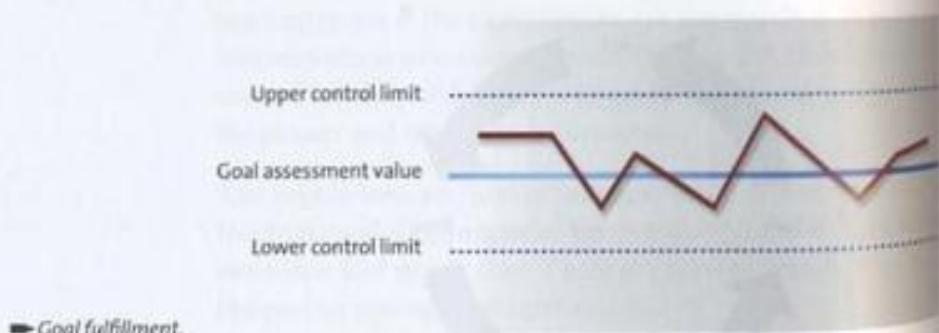
The costs of improving the standard of quality are often so excessive that a single project cannot take the costs. This is in other words an investment the line organization has to take.

## Quality Planning

The project goal, available time and resources should be considered when the quality standard is decided upon. The quality and the ambition level are closely connected. The bigger the demands are on the end result, the more need for additional resources and time.



Higher demands on quality requirements are illustrated in the project management triangle by stretching the top of the triangle, which imply that the base has to be broadened to avoid an unstable project. The requirement specification sets the quality standards. The tolerance within the acceptable goal criteria defines what is considered an acceptable result.



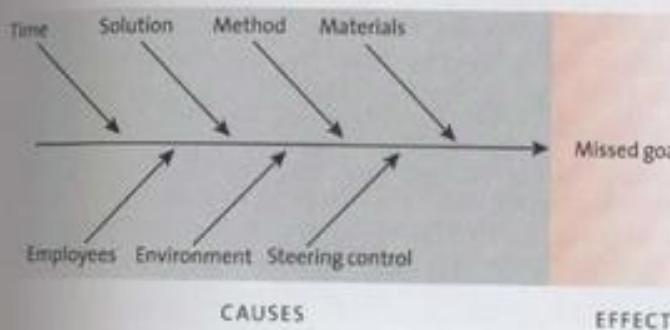
► Goal fulfillment.

One phase in the quality planning is to establish the quality standard the project should comply with. In many cases this is regulated by the client or what is defined in the particular line of business. The project's quality activities also need to be specified. This could e.g. be how to document the project, what should be reported, when follow-ups should take place, how changes are

dealt with and if external quality assurance managers should be brought into the process. If the project uses a project model all these issues are most likely already regulated. There will be documents, templates, meeting agendas and checklists on what to do, to have control of the project's quality.

## Cause and Effect Diagram

When planning the quality activities it is important to analyze which factors effect the quality the most and which connections there are between these. Whether the project reaches the quality objectives or not depends on a number of concurring factors. One method of illustrating these connections is through a so-called *cause and effect diagram*.



► The cause and effect diagram.

## CHANGE MANAGEMENT

It is imperative to decide upon routines and to document in the project plan how changes are to be handled in the project. This goes for how the changes are to be incorporated into the plan and who has the mandate to approve changes. Generally speaking one might say that all changes which affect the project's parameters, i.e. quality, time and resources, should always be approved by the sponsor and the steering committee. Insignificant changes should and could on the other hand be dealt with by the project manager, provided he or she has a mandate for this.

It is recommended that *document version control* is implemented and used on all project documents. This will simplify matters if and when someone wants to see when a change was approved and implemented.

# Moderna Museet

The Modern Museum and the Swedish Museum of Architecture's new building was inaugurated on February 12<sup>th</sup> 1998. But the success was fleeting, since it was discovered within two years that the building was contaminated with fungus. The building, which was designed by the Spanish architect Rafael Moneo and cost over 400 million SEK to complete, consequently had to be evacuated and closed for renovation in 2002. The building turned out to have many serious defects. Among other things, a foundation unsuitable for the grounds the house was built on was chosen.

*"In the museum's crawl space an unhealthy environment was cultivated and damp air spread into the building. This came from unsuitable flooring and from glue that had not dried properly which resulted in the subsequent emissions. The bad air and smell was spread through the ventilation shafts into the building."*

DN, Swedish daily newspaper, March 2004

*"Poorly executed and lacking proper organization. Everyone made mistakes but no one is responsible."*

Swedish television news March 2004

Lack of communication between the architect, the project manager, the contractors and the client resulted in a lack of control and management of the project. The architect had inadequate information on the prerequisites, the project manager was not thoroughly familiar with the architect's ideas and vision, the contractors implemented their own solutions, etc. Many mistakes made can probably be ascribed to the lack of continuous follow-up and communication within the project.

January 15<sup>th</sup> 2002 the museum was closed for a total renovation. This took two years and cost 334 million SEK which was almost as much as the building originally had cost, and twice as much as had been budgeted (175 million SEK). How was it possible for the project to exceed the budget with 100%?

The renovation project's scope was to include more than what was first planned. When the draining of the foundation was started and a new floor was laid, it was decided to replace the ventilation system. Sensible thought, but not exactly what the Swedish National Property Board had agreed and signed for. One wonders how changes were handled in this project and how the communication between the project and the client worked. Who was responsible for the project and who was responsible for the budget?

A change often originates from a deviation from what has been decided and planned. All projects are exposed to changes caused by external actions and events or internally in the project. This is why change management is a skill the project manager must command. It is her responsibility to see to it that the project progresses in consideration to the changes taking place.

It is important to decide before the project is initiated what kind of change management mandate the project manager has with regards to changes. There should be no doubt about who can decide what. It should also be determined what should be presented for review to the sponsor or steering committee.

The project manager should have a mandate to decide upon and execute changes which do not affect the goal, the delivery time or the budget. But if a change affects any of the project's parameters it is imperative that the sponsor recommend the corrective or preventive actions.

It is one of the project manager's duties to continuously communicate and inform the sponsor and steering committee on the project and possible future decisions that need to be settled (additions, deletions and modifications).

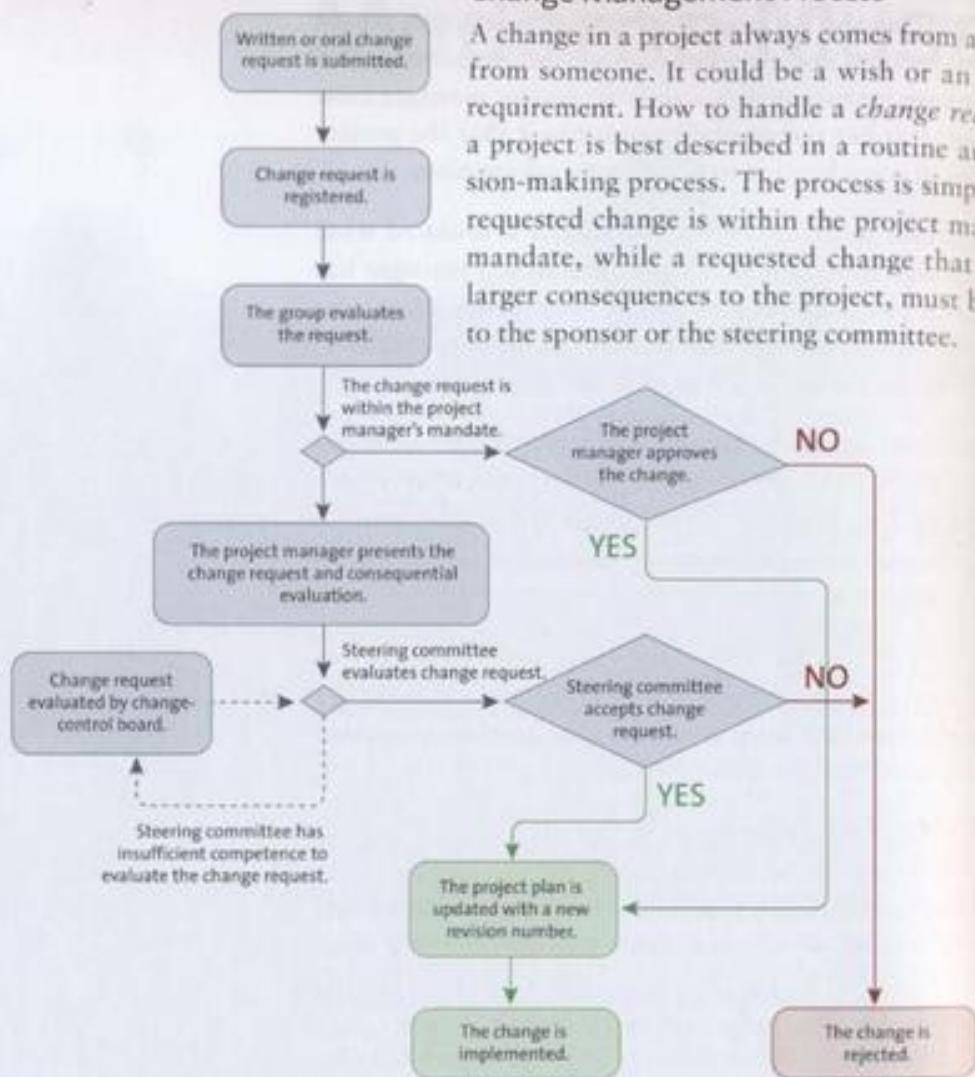
It is not wrong to make changes to the plan or goal as long as it has been revised and approved by the sponsor or steering committee. To casually accept new significant requirements without informing of the consequences is on the other hand unfavorable, even if it is the sponsor who wants to make the modifications to e.g. the goal or delivery time.

It is imperative for the project manager to be resolute and have the necessary courage to make demands, otherwise it is easy to end up in a situation where the sponsor is not prepared to pay for executed work done.

The project manager must continuously focus on the project and monitor that it does not expand too much. It might be more advantageous to transfer new requirements to a new project. Too many modifications risk that the direction of the project is changed all together.

## Change Management Process

A change in a project always comes from a request from someone. It could be a wish or an explicit requirement. How to handle a *change request* in a project is best described in a routine and decision-making process. The process is simple if the requested change is within the project manager's mandate, while a requested change that involves larger consequences to the project, must be taken to the sponsor or the steering committee.



## Change Control Board

A *change control board* is a detached body consisting of stakeholders responsible for the assessment and review and subsequent approval or rejection of changes to a project. It functions as support for project managers and steering committees when their competence is insufficient, or when changes might affect concurrent projects. Also known as change management board or change review board.



# Communication

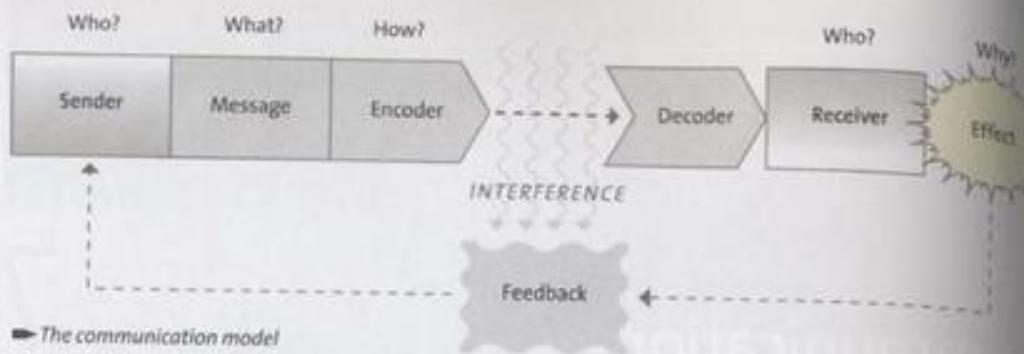
In order for the project group to know what to do, the project manager to be in control, and the sponsor to feel comfortable with the situation, it is imperative to have proficient communication within a project. Goal and plans are to be communicated, results reported, changes approved and documents distributed. Communication takes place both internally in the project organization and externally with other stakeholders.

## COMMUNICATION STRATEGY

A **COMMUNICATION strategy**'s purpose is to achieve specific communication goals for all stakeholders.

Communication goals are expressed according to what you want the different stakeholders to know, feel and do. The project manager's ability to communicate is crucial to the project's success. During the execution phase the most important task for the project manager is to communicate with the stakeholders.

Successful communication is not equivalent to successful persuasion. It is important to understand the basics of communication to be able to pass on a message properly.



The communication model above is based on Lasswell and Shannon and Weaver's models. Lasswell coined the expression: "Who says what in which channel to whom with what effect."

To manage is to communicate, and by communicating you manage. Communication is a two-way street while information is one-way. Communication happens when sender and receiver sends information between each other.

All communication has a purpose. It could be anything from just informing about the situation in a project, to wanting a response from the receiver. In the communication model this is called achieving an effect.

A message has to be expressed and articulated so that the receiver can interpret it the way it was meant to be. This is called coding and decoding. If this process does not succeed misinterpretations might arise. It is vital to the process that sender and receiver use the same key, i.e. communicate in such a manner comprehended by both parties.

Feedback is the sender's receipt that the transmission was successful. Interference can sometimes obstruct communication from achieving wanted purpose.

It is imperative to choose the right time to communicate. If the receiver is busy or focused on something else it is difficult to connect with the receiver. Often, a "critical" event has to take place for the message to be acknowledged.

## Influencing Stakeholders

Stockholm is built on water and is often referred to as the Venice of the North. It has continuously been a challenge to meet the infrastructure exigencies in the expanding city while simultaneously preserving the city's character and old buildings. The central parts of Stockholm dates back to the 13<sup>th</sup> century.

An important junction between the city's north and south is the Karl-Johan Lock, also known as "Slussen", where road and sea traffic intersect. Since the Middle Ages there has been a lock in this place which regulates the water level between Lake Mälaren, one of Sweden's largest lakes, and the Baltic Sea. As the traffic has increased over the centuries the old constructions have been replaced with new and bigger ones. The present day lock was built in 1935.

The Karl-Johan Lock has served its time and needs replacing by a new and modern one which can tackle the demands of the 21<sup>st</sup> century. Public transportation has increased to levels far beyond expectations, while personal transportation has decreased by 50% due to the highway west of the city called Essingeleden, which was opened by the end of the 60's. Lack of safety, pleasant environment and accessibility for pedestrians are also reasons why the old construction needs changing to a new and more suitable one.

The City Planning Administration of Stockholm has realized the importance of including all stakeholders in the project. This is why a communication strategy was developed early on in the process, which focused on the three most important stakeholders; the general public, politicians and media.



The new lock. The architectural competition in 2004 was won by Nyréns Arkitektkontor but the project has been delayed until a final solution has been decided upon. All stakeholders have different opinions and agendas to satisfy.

**The politicians had decided to fell the elms in Kungsträdgården to make room for a subway station. When the trees were felled during the night of the 12<sup>th</sup> of May 1971 the Stockholm City Development Administration's workers were met by a couple of thousand demonstrators who had climbed up and occupied the trees. The first battle was won and the trees were guarded day and night by young and old and people from all classes of society. It was one long popular festivity. After five days the City Commissioner Hjalmar Mehr informed that the felling of the elms had been postponed and the decision was to be reviewed. The trees stayed and the subway entrance was relocated. The elms became world-famous since 20-odd TV news teams from all over the world covered the events.**



What was to be communicated and when was the best time? This was one of the first questions to be dealt with in the Slussen Lock project. It was decided to take the offensive path to enable the project to constantly be one step ahead and to shape the public image of the project. It was about being in control of the perspective. It was consequently important to communicate serious and credible information to the media. The tactics were

There was a lot of learn from previous projects. In 1971 "the Battle of the Elms" took place in Kungsträdgården (The Royal Garden) which led to riots and police intervention. The City lost the battle which meant a planned subway station's entrance was relocated. "Only" 13 elms were meant to be felled, which seems like peanuts compared to the 126 lindens which were felled during 2004 and 2005, without any protests from the general public. The big difference being that in the latter example the project had explicitly informed and communicated that the trees were attacked by rot and necessitated felling.

so far this communication strategy has worked and been successful. An architectural competition has been carried out and several proposals have been selected, awaiting final decision. If the project schedule stays on track the construction will commence in 2009 and inauguration will be in 2016.

### Rhetoric

What makes us choose one thing before the other? Rhetoric is about articulating a message with the distinct objective for it to be understood by the receiver. Already during the ancient Greek times "the trinity" was discussed.

Ethos – who I am and what gives me the right to speak.

Logos – substance, fact and logic.

Pathos – how to communicate the message and the feeling conveyed.

It is possible to convince others with a thorough disposition. There are many advices on how to articulate an argument. Regardless of which way chosen it is of the essence to create an interest in the message conveyed.



► Winston Churchill – one of the greatest rhetoricians of

### A convincing disposition:

**Preface** – Generate attention through something of current interest, preferably something unusual, important and personal. Now and about yourself.

**Background** – Attain confidence to enable the target audience to identify itself with what you plan to talk about. Adapt your description of problems, threats or needs to the arguments you consider using.

**Thesis (proposal)** – The solution to what is found in the background description.

**Argument** – Three main objectives which prove the thesis. Use arguments that are adapted to the target group and expose advantages expressed in value, character and/or experience. Use a strong argument, and bring up a counter-argument if possible.

**Conclusion** – summarize thesis and argument.

► During your preparations, start with suggestions and arguments followed by background and finally the preface and conclusion.

## COMMUNICATION PLAN

It is important to establish communication infrastructure. The *communication plan* is the tool which will ensure that the right target audience gets the right information on time and in the appropriate way.

By planning the flow of information the risks of making mistakes are minimized, thereby avoiding irritation from stakeholders who consider themselves overlooked.

The communication plan also ensures the flow of information the project manager needs to perform successfully. The plan should contain not only information to be distributed, but also the information which needs to be collected.

Who? - Receiver	Why?	What?	How?	When?	Who? - Responsible
Members of the project organization	Establish the project with important stakeholders	Pre-study	Project meetings	Pre-planned by project initiation	Project manager
Clients	Requirements	Steering committee meetings			Sponsor
Potential users	Project plan	Reports		When needed	Client
Reference group	Deliver decision documentation	Budget and calculations	Online project, intranet	Continuously	Press secretary
Contractors	Distribute financial information to financial administrator	Resource requirement plan	Demonstrations and presentations		Project team members
Partners	Status	Status	Project archive		Quality assurance managers
In-line organization	Show what the project has accomplished	Test results	Revisions		
	Exchange lessons learned within the project or with stakeholders	Financial outcome	Final report		
	Collection of information needed to execute the project	Resource utilization			
		Changes			
		Prototypes			
		Project reviews			
		Experience			

► Examples of what the communication plan ought to contain.

## REPORTS

A vital part of all communications in a project is about performance and progress reporting. To have control of the situation the project manager needs to receive information from the team; what have they accomplished and how much time they have used. This information is needed to enable the project manager to make the right decisions, but also when compiling reports for the sponsor and steering committee, who are also dependent on factual and correct information in their decision-making processes.

Producing performance reports may seem like an easy task, but it is actually difficult to master. This is first and foremost because the people working in the project, including the project manager is occupied by solving problems and staying on schedule. The communications with the stakeholders suffer when focus is on the tasks to be done.

If failing to report there is a great risk that the sponsor and the steering committee will get an incorrect perception of the project and its progress. They might interpret silence as if everything is coming along fine, when the project is actually behind schedule and everyone is working overtime to make their deadlines. Sooner or later the truth will emerge.

To avoid experiencing reporting as a burden it is possible to minimize this by only collecting information which is actually needed.

#### Examples of performance reports during the execution phase

- Performance reporting from project team members to the project manager.
  - Activity or resource level
  - Result and deviations
  - Time reporting
- Performance reporting from project manager to sponsor and steering committee.
  - Overall project activity
  - Result and deviations
  - Time and cost reporting

During the execution phase every performance report should be registered, as well as memos from project and steering committee meetings. Approved changes should be noted in the project plan and other appropriate project documents, and a new document version number acquired. Soon enough a great deal of documentation has been gathered and this needs to be handled properly. Support for managing documents and meetings are therefore an essential component of project tools and web-based project support services.

## MEETINGS

A great deal of time spent on a project goes towards different meetings.

#### Examples of different meetings:

- Information meeting – to distribute and compile information.
- Work meeting – to solve a problem or work on a task.
- Decision meeting – to make and document decisions taken.
- Negotiation meeting – to reach an agreement.
- Evaluation meeting – quality assurance.

#### Project Meeting

*Project meetings* should be held regularly, at least weekly and should be a part of the project plan's scheduled activities.

#### Examples of an agenda for a project meeting:

1. Call to order
2. Attendees
3. Approve minutes from previous meeting
4. Project status
5. Pending activities
6. Miscellaneous
7. Review and update activity list
8. Review and update risk response list
9. Meeting adjourned

#### Steering Committee Meeting

*Steering committee meetings* should be held regularly; at least whenever a tollgate or unforeseen events occur, which requires decisions to be made.

It is recommendable to plan the steering committee meetings during the planning phase, and document them in the schedule, since steering committee members often have very busy schedules themselves.

Examples of an agenda for a steering committee meeting:

1. Call to order
2. Attendees
3. Approve agenda
4. Approve minutes from previous meeting
5. Project status
6. Decisions to be reached
7. Miscellaneous
8. Time and venue for next meeting
9. Meeting adjourned

An agenda should be distributed at least a week in advance before a meeting together with a performance report and sustaining documentation on the decisions to be taken. The protocol should be distributed as soon as possible after a meeting.

## PROJECT OFFICE

Gathering the project group in one location will quickly bring the project up to speed, keep the group together and develop effective team work. Ideally the project group should be given its own *project office* where the entire group can work together.

► The project office for the "Digital Archive" project.



Preferably, use a wall to place an enlarged project schedule on, where the result and changes are continuously updated. Do the same thing with the stakeholder and risk analysis and the budget.

To visually have this continuous updating on a daily basis increase awareness in the team members on what needs to be done and what should be prioritized. It generates an effective establishment of the project within the team and with the stakeholders visiting the project office.

The project "Digital Archive" which was carried out from 2004 to 2005 by the Swedish Public Service Broadcaster, SVT, is a good example of how to use a project office. From the very beginning of the planning phase the team gathered in an office situated next to the main entrance of the building.

The office, which previously accommodated a travel agency, had a glass wall facing the entrance where employees and visitors passed by continuously. This enabled everybody to see the project team when they were working and how they gradually carried out their project.

## PROJECT PORTAL

The information technology of the 21<sup>st</sup> century offers many possibilities for setting up an administrative platform for communications in the project. The most simple is to create a website solely for the project on the company's intranet where project documents are stored and maintained.

It can easily be controlled who gets to access the information by password protecting the site. It is appropriate to classify the information and make some documents available to all stakeholders, e.g. an overarching project plan, while minutes of meetings, reports, tests and budgets should be viewable by project team members only.

A project portal, also known as the project work area, is a communications platform where documents, plans and reports

## Projectplace International

Projectplace.com is an online tool which assists project managers and project groups in managing the most vital processes in projects. Document administration, planning and follow-up of executed work and activities, and scheduling and execution of meetings are some examples of how to utilize this online project tool.

A handbook, demo film and an easily accessible guide will facilitate the set-up of a new project on projectplace.com and also make it easy to invite appropriate participants via email.

Elementary planning can be done instantaneously in projectplace.com, but if a more sophisticated alternative is needed it is possible to import a time schedule from Microsoft Office Project. The great advantage of working in a web based project tool is the fact that everybody has access to documents and plans, which makes it possible to plan the project together, regardless of where the team members are physically located.

The screenshot shows the Projectplace International software interface. On the left, there's a navigation bar with links like 'My Overview', 'Campaigns', 'Case studies', 'Competence areas', 'CRM management', 'Demos\_English', 'Demos', 'ISO International training 2 April 2005', 'Events', 'Intercollaboration', 'IntranetPortal', 'IntranetCollab', 'IntranetCollab 2', and 'Mail address for Baseline PMG'. The main area has tabs for 'Project Overview', 'Documents', 'Meetings', 'Issues', 'Tasks', 'Home', and 'Create'. Under 'Project Overview', there's a summary card for 'Implementation media (21 Rev.)' with a progress bar at 57% and a note about evaluation. Below that is a 'Future work' section with a list of tasks: 'Write the project report', 'Work package 1', 'Testing of new service', 'Email intercollaboration with clients from the Rev.', 'Report', 'Work package 2', and 'Working Package 3'. At the bottom, there's a message about replying to a test request for a time and progress report.

SOURCE: PROJECTPLACE INTERNATIONAL

## Office SharePoint

If you require more than what the templates offer, it is possible to create a personalized project portal on the company's intranet that is tailored to your needs. Microsoft Office SharePoint Server or Microsoft Windows SharePoint Services, is a tool that allows you to store and present information from different locations. This is possible by creating a meeting workspace with the functionality you desire.

The screenshot shows a Microsoft SharePoint page titled 'Baseline Management'. The top navigation bar includes 'Project Overview', 'Document Library', 'Search', and 'Help'. A red circle highlights the 'Project Overview' link. The main content area features a 'Tasks' section with a table showing tasks like 'Create basic portal', 'Create list of interests', etc., with columns for 'Title', 'Status', 'Due Date', 'Is Complete', and 'Assigned To'. To the right, there's a 'Recent Items' list and a 'Search' bar. The bottom navigation bar includes 'Project Overview', 'Document Library', 'Search', and 'Help'.

with several different projects and want to have an overview of your projects, SharePoint can present all of these at a shared place, by connecting your own personal collaboration site to other sites.

SharePoint only shows information that you have permission to see. If you wish to protect specific documents it is possible to allow permissions on individual documents. Furthermore, workflows and policies for documents and other information can be defined. This is of use when following set standards such as Sarbanes-Oxley Act, (SOX) and ISO. The policies allow you to set duration of how long a document should be stored and what the action is thereafter, i.e. to convert the document to a PDF file and move it to an external archive.

SharePoint's powerful search engine will help you find the information needed, whether it is stored on the computer, the company's intranet, servers, or on the internet. Only information that you have permission to read is shown.

SharePoint is integrated with Microsoft Word, Excel, Outlook etc. A project portal, or a meeting workspace as it is called in SharePoint, can be created from Outlook by inviting attendees to a start up a meeting. Here, you can explain where the meeting will be held, who is attending, and the subject of the meeting. E-mails that are sent and are relevant in a project can be stored in SharePoint so that more project members are updated and informed. This in turn creates a history which allows you to see the information workflow.

In a shared place everyone can collaborate if they are working at the office or via internet. If you are working

A tool as SharePoint ascertains that a network connection is available; however it is possible to work off-line by means of saving libraries and lists via a SharePoint off-line folder in Outlook. Once an Internet connection is available, the folder(s) will synchronize with SharePoint and colleagues at the office will at once receive access to the updated information.

SOURCE: MICHAEL JANSSON



are accumulated. It is useful to build a work area for a project or create a portal where multiple projects can be administered. There are convenient web services available online, e.g. Projectplace International, which is accessible and easy to use without much previous experience.

### Identify Informational Needs

The project information needs to be adapted to the receiving project role. The sponsor and the steering committee have no use of or need for the detailed level of information that the project manager does. Project members need first and foremost information on the issues and activities they contribute to, while stakeholders outside of the project organization need only overarching information on the project progress. A project tool should therefore be able to optimally filter, select and present information according to the target group's informational needs.

### Project Log

The project manager should keep a personal project log during the entire project where anything of importance is noted. The log is an irreplaceable source of information if differences of opinions arise as to what has been said or not. Memories fade over time, but not the written words.

# 8

## Initiating the Execution

It is the project manager's responsibility to manage and guide the project group during the execution phase. The project manager's leadership abilities are tested during this phase, all the while the true quality of the planning is revealed.

If the assumptions and assessments made earlier are accurate the project group will live up to the expectations and the outcome will be as planned.

### GUIDING THE PROJECT GROUP

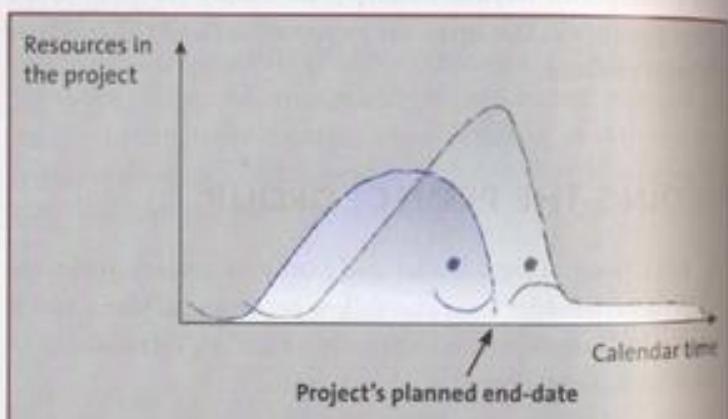
A part from being a leader and boss of a project group the project manager must also follow prearranged plans, tackle changes and communicate internally as well as externally with numerous stakeholders.

Communication in this case involve, among other things, to follow up and document results, report on deviations, organize and carry out project and steering committee meetings, revise and distribute plans and requirement specifications, check and balance accumulated costs against the budget baseline, and keep all stakeholders informed on the project to avoid unnecessary concerns.

### Activity examples during the execution phase:

- Acquire resources.
- Project staffing.
- Follow up project plans and manage changes.
- Maintain continuous communications.
- Complete project evaluations.

When the project manager has received the go-ahead from the sponsor and steering committee to start the execution phase he should make sure to start the work as soon as possible. A leisurely pace in the beginning has a tendency to punish the project in the end, since delays have to be caught up with. The workload is not reduced in a project just by putting off the work – on the contrary. Trying to squeeze in remaining tasks during the final phase of the project entails more work and increased costs, on top of an almost inevitable delay to the project.



It is possible to visualize the project's resource utilization with a "happy whale" and an "unhappy swordfish". The project should be run like you are having a whale of a good time which in effect means that the project manager makes sure the team members follow the plan, report on executed activities and close the project on time.

A swordfish project, on the other hand, has a project manager who is not methodically pushing the team to follow the plan and report on the progress. Because of this he loses control of the project and risks breaking the schedule. Other projects will suffer when the swordfish retain resources which are scheduled to be used elsewhere.

### PLANNING REVIEW

Occasionally some time passes between the project plan being completed and the actual execution of the project. The steering committee has to assemble and make its decision. The project group has to be staffed and contracted and other resources have to be acquired. Team members with key competencies must also be available to facilitate project start. Issues might occur during this intermediate period, which demand a review of the project plan.

A project plan review is especially important in projects where the execution phase is to be carried out by a new project manager who has not been a part of the planning process.

If an individual has accepted the responsibility involved in executing a project, he or she should also have the authority and ability to review and if necessary revise the plan. This is a condition which should be found in every project contract drawn up between the project manager and the sponsor.

The following issues should be documented, reviewed and acknowledged before execution initiation:

- Background on the project.
- Who is the sponsor and consequently responsible for the project.
- Why the project should be carried out and which needs it is to satisfy.
- The prerequisites for executing the project.
- The situational analysis including all factors for and against the project.
- The stakeholders' analysis.
- Expected delivery – S.M.A.R.T. goals.
- The requirement specification including measurable product and project requirements.

- Prioritization of the most important project parameter; quality, time or cost?
- Solution selection.
- How and when the project is to be executed; schedule and resource plans.
- Clearly defined roles and established mandates and responsibilities.
- Budget specification on activities and calendar time.
- When to deliver final result and how it is to be approved.
- Risk analysis and response planning.
- Routines on reporting and continuous follow-up.
- Routines on change management.
- Formal agreement to regulate the relationship between sponsor and project manager.
- Prepare contracts for all the resources.

A number of the points above are obvious issues to cover in the project plan.

A project manager must question if the proposed activities lead to the wanted solution and if the estimated scheduled time and resources are reasonable considering the competencies the project has at its disposal.

He should also ascertain whether the budget will cover the execution of the planned activities. It is never acceptable to rely on vague promises that additional resources will be available at a later stage.

## PROJECT REVIEW MODEL

Completely infallible projects are non-existing. All projects have a degree of uncertainty. It is ideal to start the project with "open eyes", i.e. the sponsor and the project manager realizing which risks and deficiencies the schedule and the budget have.

The purpose of a project review is to identify risk areas and deficiencies to minimize or eliminate them before the execution phase starts, if this is possible at all. The *residual risks* and deficiencies which could not be eliminated or otherwise dealt with, might affect the project's planned end-date and total cost.

### Project Risk Assessment (PR)

	Yes	No
<b>Priority and establishment</b>		
1 Does the project have low priority – many other issues within the company which affect the project?		
2 Could there be a risk that the project be considered a threat, e.g. by competing for resources with other projects?		
3 Is the responsibility between the project and the line organization unclear?		
4 Is there a lack of obvious resource recruiting and allocation in terms of a missing resource agreement?		
<b>Resources and competency</b>		
5 Do project team members lack competence within this product or business area?		
6 Do any of the main responsible team members work part-time, i.e. more than 20 percent in another position?		
7 Is the project dependent on key competencies who are also involved in other projects?		
<b>Complexity</b>		
8 Are there many stakeholders and different requests, and is there a risk these cannot be coordinated?		
9 Does the project affect many people?		
10 Is there an imperative deadline and is the planned project end-date near this point in time?		
<b>Dependencies</b>		
11 Is there an organization in place to administer the end-product before project closure?		
12 Are there any dependencies to other projects or external stakeholders?		
13 Are there any uncertainties in the market or within the organization which makes the project questionable?		

Summarize the figures in the "yes" column and divide by 13.

## Project Quality Assessment (PQ)

### Priority and establishment

		Yes	No
1	Is the project firmly established and recognized within the company and with other involved parties?		
2	Have all involved managers assessed the business impact goals and will they accept responsibility for realizing these?		

### Goal and delivery

		Yes	No
3	Is the product goal and any potential sub goals documented and does everybody know these and accept them?		
4	Is the project's business impact goal and product goal continuously reviewed against the business value and the requirement specification?		

### Competency

		Yes	No
5	Has the sponsor any experience in similar projects of this magnitude – with good results?		
6	Has the project manager any experience in similar projects of this magnitude – with good results?		

### Organization, responsibility and decisions

		Yes	No
8	Have all team members understood and accepted their roles, responsibilities and authorities?		
9	Is there a steering committee appointed with documented responsibility and powers?		

### Project group and communication

		Yes	No
10	Are the stakeholders mapped out and is a communication plan produced?		
11	Is the project kicked off by clarifying the goal, the prerequisites, rules etc.?		

### Continuous – decision-making, planning and reviewing

		Yes	No
12	Does the project manager have a financial mandate and can he make decisions within the framework of the project?		
13	Have working routines for all types of resolutions been established, e.g. changes?		

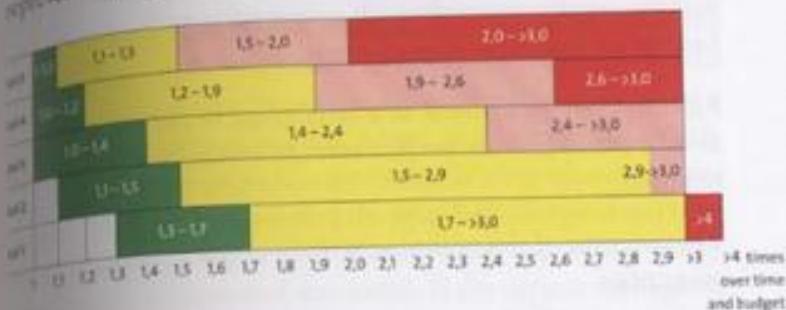
Summarize the figures in the "no" column and divide by 13.

### Assessment of Project Influence

PR value		PQ deficiencies
0 - 20%	Good	0 - 20%
20 - 40%	Uncertain	20 - 40%
40 - 60%	Poor	40 - 60%
>60%	Very poor	>60%

## Project Management Maturity

The organization's project management maturity also has a great impact on the project's success. The entire influence on the project is displayed graphically. The colors represent the project's specific influence (PR respectively PQ) while the levels represent the organization's project management maturity.



**High (Level 4 - 5)**  
– An organization where most of the daily operations are carried out in projects. The organization is capable of executing large and complex projects, and will most likely have a fully developed project model which is adaptable to a project's specific requirements. Continuous education and competency training takes place.

**Medium (Level 2 - 3)**  
– An organization that can carry out relatively large projects. There is a well documented and standardized, but not particularly flexible project model in place. There are a few project managers who have great competence in their field and tend to be overused, while others who are eager to advance seldom get the chance.

**Low (Level 1)** – An organization where only a smaller part of the daily operations are carried out in projects, due to the traditional hierarchical organization, where the power lies with the line managers. This kind of organization should only carry out smaller projects.

The subject project management maturity will be dealt with in detail in chapter 15.

The project's prognosis is achieved by choosing color in accordance with the PR values respectively PQ deficiency and choosing the appropriate level according to the company's project management maturity. Read the numbers in the table. They represent how much to multiply project time and budget with. If the PR and PQ have different colors use the average value to reduce the uncertainty span.

E.g. a "yellow" PR and PQ project will most likely exceed the schedule and the budget by 1.5 to 2.9 times if the organization is on project management maturity level two, while the same project in an organization on level four will find itself between 1.2 and 1.9 times. In other words, the prognosis is twice as positive. The same positive effect is achieved if it is possible to move the project's color from yellow to green by improving PR or PQ or both.

The project manager can influence the color by lowering the risk value and shortcomings, while the company senior management has a responsibility to influence the levels, by further improving capabilities in projects through developing the project management maturity within the company. The latter is a time-consuming and long process. This project review model is based on Measure from HiTeach.

## RESOURCE PROCUREMENT

Before a project can be executed the project group must be staffed and other resources committed. It is uncomplicated for the project manager if all resources are found within his own project organization. Otherwise external resources have to be recruited. This can be done by taking in consultants or by making arrangements through cooperation with a partner who has the resources the project needs.

Resources to be utilized at a later stage in the project should also be planned from project start to ensure availability when required.

The outcome of this planning is often called a *staffing management plan*.

### Project Group Staffing

It is not obvious that the project manager gets to choose his project team. Besides, it is not always the best thing if he does get to do it. In a well-functioning matrix organization, with line managers who are competent resource owners, the project manager only needs to express which kind of resources he needs and how many. The resource owner will supply the project manager with the most suitable people and the appropriate competencies needed.

The role assignment between the project manager and the resource owner is lucid. The project manager is responsible for producing a resource management plan, while the resource owner is responsible for recruiting and individual competence development planning. This role assignment is a good example of how shared responsibility can be advantageous in ensuring the organization has the right resources available for the projects which are to be executed.

The disadvantage by allowing the project manager to staff the project himself is that he will most likely choose people he knows and has solid experience with. He does not want to risk his project by bringing in people he does not know or has reservations about. Competent and experienced people are therefore

overworked and overwhelmed while inexperienced people do not get a chance to show what they are made of.

It is the senior management's responsibility to balance the project's short-term needs for knowledgeable resources and the organization's long-term needs to develop competencies through hands-on project work.

Whichever way the staffing is done, it is desirable to let the project manager have the last word and decide who gets to be a part of the team. To be forced to work with a person you have a difficult time cooperating with, or one you know from experience does not have enough competence, is a significant risk for the project. It is important that the so called interpersonal relationships between the project manager and the project group members are effective and successful. If the project manager is dissatisfied with the resources he is allocated, he has to complain and ask for others.

The nature of the project very much decides who should be a part of the project team. Different characters fit different projects. It is advantageous to e.g. use Belbin's team roles, Adizes characters or the communication profiles when planning the group and assigning roles.

It is in practice not always possible to choose the best and most suited resources for a project, and the project will have to make do with those who are available.

The budget might not support external consultants fees, or company policy says the project should be executed using own resources. The project manager will have to make the best of the situation and create a group while taking individual personalities into consideration. The project manager will benefit from knowing how the team work might progress depending on the personalities involved.

A project manager has to make sure everybody is striving towards the same goal. The project's result is more important than the individuals achieving their own personal goals. The project manager has to secure the strategy, and manage the group.



## Competence

"People who lack competence don't realize that they lack it"

Gunilla O. Wahlström

Competence equals capacity to utilize the knowledge you possess in a certain area or on a certain subject. For this competence to become obvious a will to transform knowledge into actions is required.

	PROJECT	
	Specified competence	Situational demand on competence
<i>Formal and certified competence</i>	Demand and supply which theoretically match.	Practical experience needed, no only formal knowledge available
<i>Actual competence</i>	Proven competence which matches demand.	Utilized competence – demand and supply matches in practice

Usually there is a difference between how a specific competence is described and what is essentially needed in a project or what an individual can accomplish. By formal and certified competence it is understood the skills which have been acquired through education and is documented in certificates, diploma credentials etc.

Actual competence is the competence an individual has, which he or she consequently can utilize to solve an assignment or do a job.

What is in demand and what is needed for a project is called specified competence, while the competence the assignment or situation demands is called situational demand for competence.

In reality the specified competence is not always needed for the actual competence. The nature of the assignment might only utilize a part of it, and this is called utilized competence.

## PROCUREMENT

Projects which need to acquire resources, materials or equipment externally must carry out a *procurement* process which is initiated by identifying the needs which are best satisfied by the help of external resources.

### Make-or-Buy Decision?

A decision has to be taken on what to produce within the own organization or what should be purchased externally. To make a decision like that, an analysis of what is most cost efficient needs to be done. If it is decided to bring in an external resource it is necessary to consider the costs for the procurement process and administration on this.

If, on the other hand, it is decided to produce a product or service entirely within the company, it is necessary to consider how the company's joint resources are utilized in the best way. Does the mere production command resources which could be used better in other projects? A factor which might be significant during a procurement process is if the purchase made will be utilized in other parts of the organization or projects.

The profitability estimate includes quite a number of factors. It could be factors the project manager has no control of or is not aware of. This is why a make-or-buy decision is taken by the steering committee or on senior management level.

The following needs to be determined during a procurement process:

- If at all to carry out a procurement process.
- How to carry out the process.
- What to purchase or acquire.
- When to purchase or acquire.
- Who is to deliver.

### Procurement Process

Everything which has to be purchased externally can be considered a project within the project. Company policies and quality

processes will often regulate how to carry out the procurement process. It is necessary to plan the purchasing well in advance of course.

There are numerous ways of completing a purchasing process. Usually the process is started by sending out a *Request for Proposal*, RFP, to those contractors considered able to meet the demands. Depending on the purpose, the RFP can be labeled with any of the below mentioned definitions.

The Project Management Institute has defined the following documents in this process: *Invitation for Bid (IFB)*, *Request for Proposal (RFP)*, *Request for Quotation (RFQ)*, *Invitation for Negotiation* and *Contractor Initial Response*.

It is imperative to shape the RFP so that it produces acceptable and comprehensive replies from potential contractors. Those who intend to reply to the request should be informed beforehand on the proposal evaluation process. Therefore criteria used to accept and evaluate submitted requests should also be specified in the RFP.

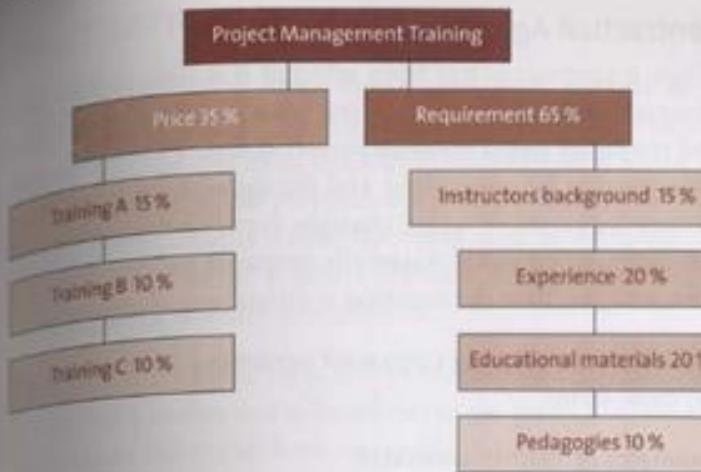
## Procurement Documents

What is to be purchased need to be thoroughly documented in a *product description* or a *problem statement*. This is to be considered a requirement specification.

A product description should describe the product in such a way that prospective contractors are able to determine whether they are capable of producing the particular product. The product description might be revised and improved upon during the procurement process, when suggestions and counter suggestions are discussed between buyer and potential seller. The outcome of this is called a *contract statement of work*.

A problem description is functionally oriented and describes what has to be purchased in terms of the problem to be solved.

The contract statement of work, on which the final agreement is based upon, needs to be completely lucid and sufficiently detailed to avoid any misunderstandings on what is to be delivered, when this will happen, and any other stipulations and requirements.



## Selecting Contractors

Many companies evaluate potential contractors continuously and sign framework agreements with those who are deemed capable of delivering the quality demanded. This is to limit the number of contractors and to secure quality.

When dealing with large purchasing agreements potential contractors are invited to a meeting, a so called bidding conference, where the procurement process is introduced and questions can be asked. The purpose of the meeting is to ensure that all the prospective contractors have a clear and accurate picture of the procurement.

If the process is skillfully completed, and the assessment criteria is lucid, it is then merely to choose a contractor among those who have been part of the bidding process.

When dealing with government contracting, the prospective seller with the lowest price – who fulfills the qualification requirements otherwise – has to be selected. In the private sector it is possible to choose anyone, but obviously choosing the best suited contractor for the job makes sense.

It is not uncommon to evaluate and prioritize the various criteria differently, the same way a project is prioritized – using the parameters quality, time and resources. By ranking all proposals e.g. through evaluation scores, is it possible to find the best suited tender for the project.

► Example of assessment criteria on an RFP on project management training.

## Contractual Agreement

When a contractor has been selected it is time to draw up a contract to document in writing what has been agreed upon and the terms and conditions involving this. The contract must continuously be supervised and the agreements between the parties regulated if major changes occur in the project or in the surrounding world. Carefully prepared and legally binding contracts facilitate the situation if differences of opinion arise.

An important part of a contractor agreement is the delivery and payment terms.

### Examples of various contracts:

- Fixed price for a well defined product.
- Fixed price with an incentive.
- Open ended invoicing for utilized resources.
- Fixed price per unit.

When human resources come from the line organization the project manager should make sure a contract is set up between the project manager, the individual and the resource owner.



## NEGOTIATION TECHNIQUES

A project manager is often confronted with various negotiations throughout the project. These would be negotiations with different parties from the initiating discussions about the project and contractual prerequisites, and all the way through to the project's closure where the result is to be accepted and acknowledged and the contract fulfilled. Negotiations are an obvious part of resource procurement.

The goal when negotiating is always to reach an agreement that satisfies both parties and is beneficial to the project. Thorough preparations are crucial for a successful outcome.

Do not be afraid to make demands. To clearly show where you stand and what your opinions are instill respect. By clarifying early on what you want and what you expect from your counterpart, you point out potential conflicts. This facilitates discussions and eventually a solution is reached, which even in the long run will seem reasonable to all parties. Trying to push demands afterwards is usually not a successful method.

*"One should negotiate with a clear mind, a warm heart and clean hands".*

Ulf Rosin

### The Four Phases of Negotiation

#### 1. Preparations

Before engaging in a negotiation it is advisable to think about what you want from the discussion and what you are prepared to give up on. The possibility of reaching an acceptable result is greater if you have defined your limits beforehand.

#### Different viewpoints:

- ① The minimum you want to achieve and is willing to accept.
- ② What you consider accomplishable.
- ③ What you are prepared to sacrifice to get what you want.

During the preparations, facts are gathered and alternatives are analyzed. The more alternatives found, the better. One factor which is decisive for the negotiations is how important it is for you to reach your goal, the same goes for the counterpart obviously. Another important part of the preparations is getting an understanding of the counterpart's limits.



## 2. Discussions

When the groundwork has been done it is time for the next phase, the discussions. During this phase the parties reveal their positions. It is all about getting the counterpart to see the situation from your point of view by arguing for your cause. Obviously the counterpart has the same aspiration.

The person who takes the first initiative has the greatest possibility of retaining the discussion in his corner, i.e. the discussion progress from and is focused on your proposal. The purpose of this entire phase is centered on creating unanimity on the issue and building a collaborative platform.

It is imperative to be attentive to the signals the counterpart transmits; the conscious as well as the unconscious. It is also important to think about how and which signals you project physically; your tone of voice and body language makes a difference in how and what you are saying is perceived.

## 3. Proposals

The third phase is the core of the negotiations. It is during this phase the parties propose and counter propose. One should avoid making promises in order to have flexibility to maneuver and compromise.

An effective method when expressing yourself is connecting your proposals to a wish. E.g. "if you... then I will give you...". It is all about expressing yourself in such a way that the negotiations do not end up in a predicament.

The person who proposes the first motion will also take command in the negotiations. Mostly it is about finding compromises on the proposal. So it is important who takes the initiative. If the counterpart is let in too early you risk losing your advantage and his or her proposal will dominate the discussion.

If, on the other hand, you are uncertain of your counterpart, it can be advantageous to let him or her initiate the process. Maybe this is the only way to find out where you are all positioned.

## 4. The agreement

The fourth and last phase is the agreement. This is when the finalization takes place. This should be documented and agreed by both parties.

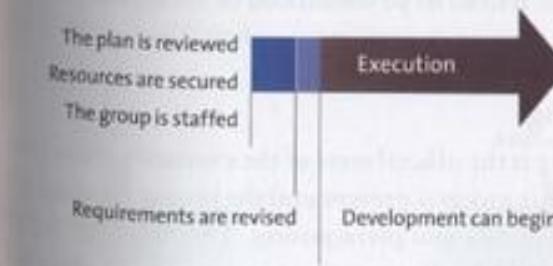
A verbal agreement is binding, but it is subsequently difficult to prove what was said and agreed upon.

If the counterpart refuses to sign a contract, it could be a signal that the agreement will not be respected, or what was negotiated was not particularly prioritized. Close the negotiations by ensuring that both parties have understood the agreement.

## INITIATE THE EXECUTION PHASE

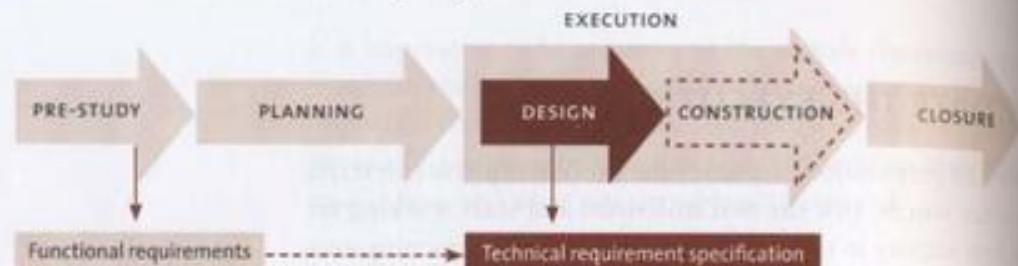
When all preparations are made the execution phase can start. In other words, tick the first milestone and start working on the first activity in the schedule. In projects with unambiguous product requirements it is basically all about setting maximum speed from day one to develop what the sponsor has ordered.

It is quite different in a project with a requirement specification which mostly contains functional requirements and where the desired product still is, entirely or partly, unspecified by initiation. It is then necessary to start the project by establishing the technical requirements. The execution phase therefore has to be initiated by collecting the missing information to determine the product requirements.



The first part of the execution phase is equivalent to the design phase in system development models. When using one of those models the prerequisites are found e.g. through interviewing end-users, measuring performances in existing systems, identifying potential contractors' range of hardware and software and producing system solutions.

In projects that develop dynamically, the product requirements are specified progressively as knowledge and experience is collected and the solution materializes. Achieved results are tied to the requirement specification and verified against the business impact goal.



► *System development model where requirements are elucidated consecutively. The functional specification makes up the foundation for the planning and design, followed by a technical specification which forms the basis of the development.*

Whether or not the product requirements are specified in detail when the project starts or produced during the onset of the execution phase, this part of the project has to be planned, resource requirements assessed and scheduled. The estimate of costs and duration is more reliable if the product is specified in detail from start.

The project start will even affect the contents of the risk analysis. Great uncertainty around the product requirement will result in many risks which need to be eliminated or mitigated before the development can start in earnest.

### Start Meeting

A *start meeting* is the official start of the execution phase when the entire project group is present and the project manager goes through the planning and prerequisites. This meeting ought to be arranged as a kick-off, since the group will most likely have several new members.



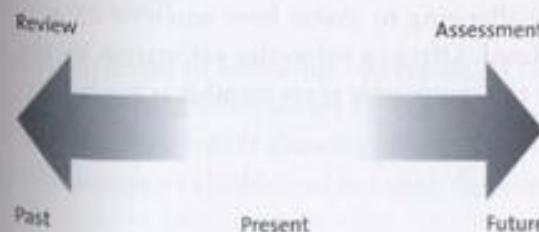
## Project on Track

To ensure that a project stays on track, continuous review of the progress is necessary, and appropriate adjustments are to be made. It is therefore necessary to look both to the past and to the future to review what has been achieved so far and to assess the remaining work which is still to be done.

### CONTINUOUS PROJECT REVIEW

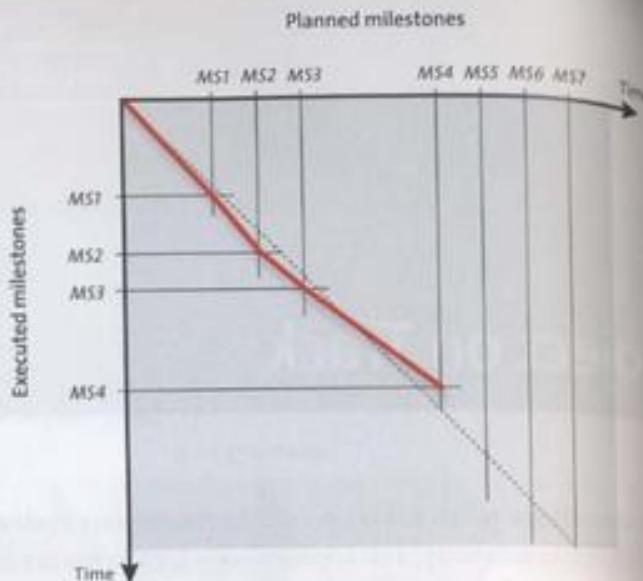
THE PRODUCTIVITY achieved by the team so far and the quality of work carried out will most likely last throughout the project. What is meant by productivity is the result which has been accomplished by using the resources assigned.

The project manager needs to be in control of not only what has been accomplished, but also how many resources have been utilized compared to the original plan to see if the project is performing as planned.



*"Work expands to fill the time available"*  
Parkinson's law

► *It is necessary to review what has been accomplished so far in the project to be able to assess the continuation and to decide on potential changes.*



**Milestone diagram for a project which is delayed up to and including milestone 3, MS<sub>3</sub>, but is before schedule by milestone 4, MS<sub>4</sub>.**

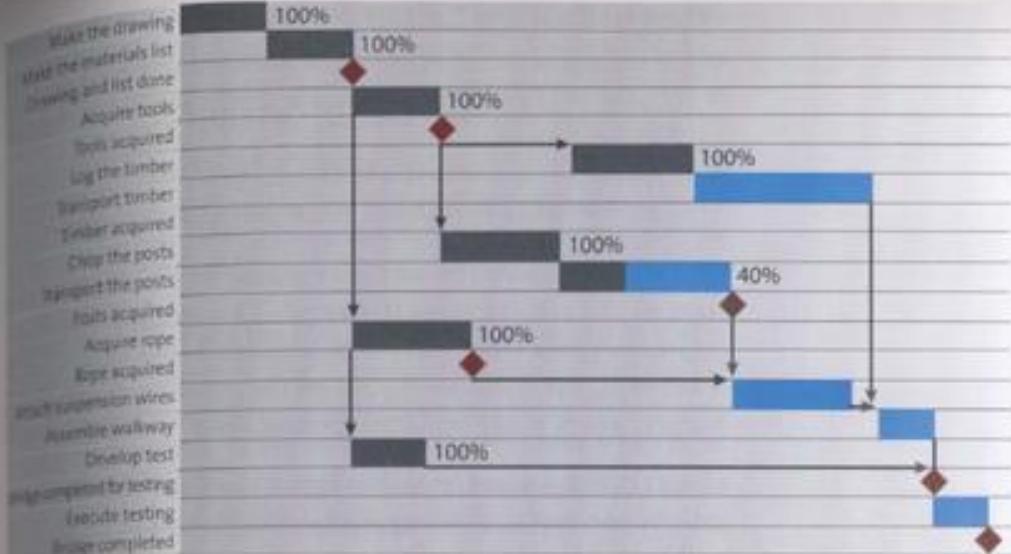
In the *milestone diagram* the line graph's length in comparison to the diagonal, which is the project's total duration, illustrates the current situation. Any plotting above the diagonal equals being ahead of the plan, while plotting under the diagonal equals the project being delayed.

The milestone diagram does not render any information on resource expenditure. This must be assessed in parallel to the milestones.

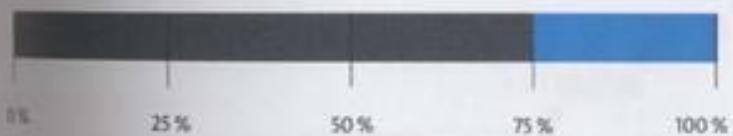
### Executed Activities

It is possible to illustrate a project's progress by identifying executed and approved activities in a deviating color directly in the schedule. Initiated, but not yet completed activities can be similarly identified.

It can be challenging to assess how much of an activity has been completed. Often, a subjective estimation by the project manager or the responsible team member is made.



To simplify the follow-up, set up completion criteria, e.g. 25, 50, 75 and 100 percent of the activity's work load, which is then compared to the actual work performance.



**75 percent of the activity is fulfilled.**

The costs of a launched but not yet fulfilled activity should also be evaluated to get a correct and fair picture of how the project is proceeding. If it is required to have total control on how many resources a given activity has utilized, the performance has to be evaluated in detail. This requires effective reporting and disciplined team members.

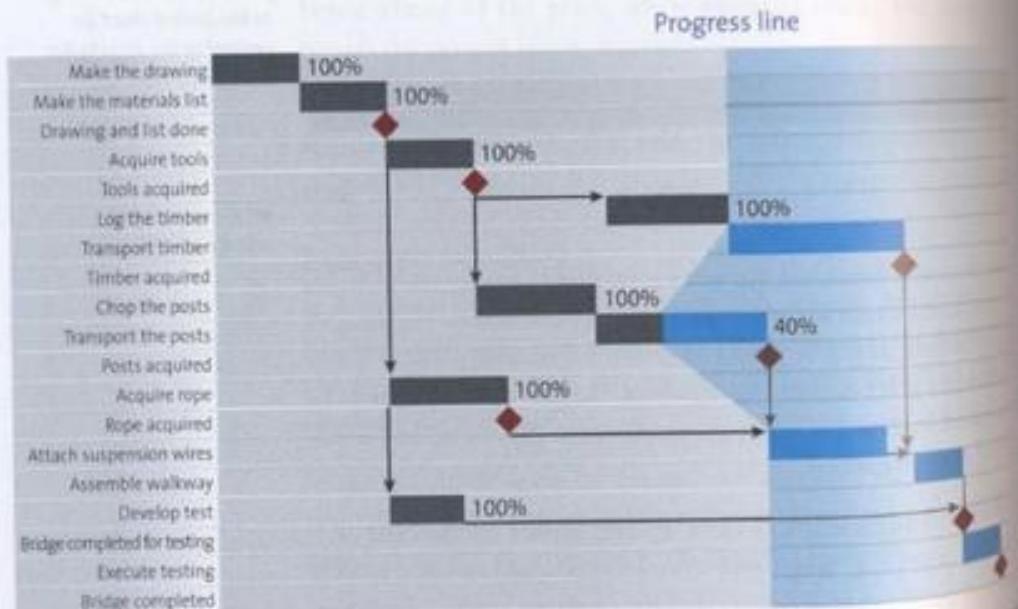
It is usually sufficient to follow up and report on the cost on a superior level, e.g. when milestones are reached or on a weekly basis. A *performance report* showing current status in relation to planned status is a valuable tool to use in this case.

## When to Book the Costs?

- 100 percent of the costs are taken when the activity is started.
- 100 percent of the costs are taken when the activity is completed and approved.
- 50 percent of the costs are taken when the activity is started and 50 percent when the activity is completed and approved.

One way to register the cost is by taking up the entire cost as soon as the activity work is started. This method avoids the impression that the project is proceeding better than what's actually is, but consequently shows the project as being above budget, which might make the sponsor react.

If, on the other hand, it is decided to book the cost when the activity is completed and approved, the cost control follow-up will look good, but might result in an unpleasant surprise if there are no proper margins in the budget for used, but not yet accounted for costs. A more fair method is to book half of the cost when starting on the activity and half when it is completed and approved.



The progress line in the schedule states the actual time. A project which is on time has a straight uninterrupted progress line. Activities that are before or after schedule interrupt the progress line and are illustrated as future or past deviations.

The timeline or what is usually called the *progress line*, illustrates if any activities are before or after schedule, have a historical origin. The project status was in the past often illustrated by a large-scale schedule on the wall where pins showed each activity and its status. A colored thread was then pulled between the pins. After two weeks the pins were moved forward according to work progress. This was considerably easier than re-writing the plan.

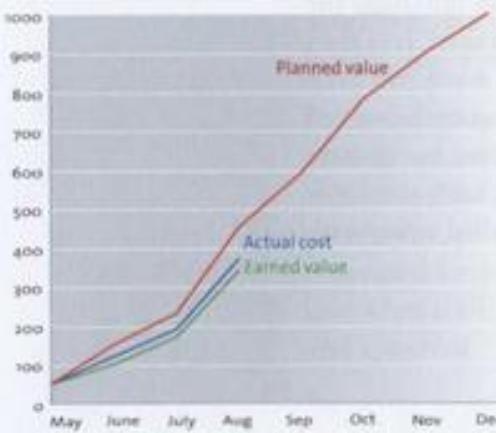
It is simple to re-write the plan when using today's technology, which is why a vertical line is preferred. Before initiating the execution phase, a snapshot of the baseline is taken. It is then compared regularly to the activities and how much has been accomplished and the progress line is consequently moved forward. It is, through this simple procedure, easy to compare the progress line to the baseline, and see where each activity is found compared to the original plan. This is called a *performance measurement baseline* plan.

## EARNED VALUE MANAGEMENT

It is not sufficient to evaluate a project by comparing the preliminary calculations with the actual costs, which is often done when carrying out traditional financial control. The financial outcome must also be related to a result. By using the *earned value management*, EVM, technique it is possible to estimate performed results and utilized resources throughout the entire project.

The earned value management technique evaluates performed results in financial terms to be compared to the preliminary calculations and eventually the actual costs. The financial value of performed tasks are found by accumulating planned work, i.e. the number of labor-hours in all activities up to a designated point in time. The actual costs are calculated in the same way as costs of utilized resources in the project, expressed in labor-hours. The *earned value* is the budgeted cost of performed activities at a designated point in time. This value deviates in most cases from the actual costs, which is what the activities actually cost to complete.

Month	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Planned				PLANNED VALUE				
Cost	50	100	80	220	140	190	120	100
Accumulated	50	150	230	450	590	780	900	1000
Spent				ACTUAL COST				
Cost	50	70	70	180				
Accumulated	50	120	190	370				
Performed				EARNED VALUE				
Value	50	50	70	170				
Accumulated	50	100	170	340				



Planned value, actual cost and earned value shown as accumulated values.

The schedule variance shows if a project is before or after schedule.

$$\text{Schedule Variance} = \text{Earned Value} - \text{Planned Value}$$

$$(SV = EV - PV)$$

$$CV = 340 - 370 = -30$$

$$SV = 340 - 450 = -110$$

The above mentioned example shows that the project is 110 labor hours behind schedule and performed activities have cost 30 labor hours more than planned. By just comparing the actual costs with the preliminary calculations the impression would have been that the project was well ahead of schedule since the spent resources where 80 labor hours less than budgeted for the given period ( $PV - AC = 450 - 370 = 80$ ).

## PAINTING A ROOM

The work involved in painting a room is estimated to approximately 40 hours. This means that the work has a value of 40 hours, which is called *Planned Value*, *PV*, in the earned value management technique.

If the job only takes 30 hours to complete, the value of the work is still 40 hours, the so called *Earned Value*, *EV*, while the cost of the performed work, the *Actual Cost*, *AC*, is 30 hours. If the job, on the other hand, requires 50 hours the *AC* will increase to 50 hours, while the *PV* is still 40 hours.

If you want to review the work to find out exactly how far the painter has come three days into his work, i.e. after 24 hours, you will have to measure the room to see how far he has come.

Two of the four walls in the room have been completed to a value of 20 labor-hours. Furthermore, the painter has put down 22 hours on his timesheet since he has not even been present the entire time, which is actually two hours of planned work missed. It would have been positive if he had actually performed 22 hours of work, but he has in fact only performed 20 hours. This means that the work he has done has cost more to execute than planned.

Schedule Variance:

$$SV = EV - PV = 20 - 24 = -4$$

Cost Variance:

$$CV = EV - AC = 20 - 22 = -2$$

The project is four hours behind schedule according to plan, and has a cost variance of two hours compared to the result that has been achieved.



The earned value management technique is based on the Commercial Airplanes Division of the Boeing Corporation in Seattle, US and their "Boeing Program Management Best Practices" program. It was during the late 1960's when the commercial airliners Boeing 727 and 737 were constructed that the work method earned value management technique was developed. Progressively the method has developed into an increasingly useful tool for integrated control of larger projects, public as well as commercial. Earned value has become a civil standard in Great Britain and the US.



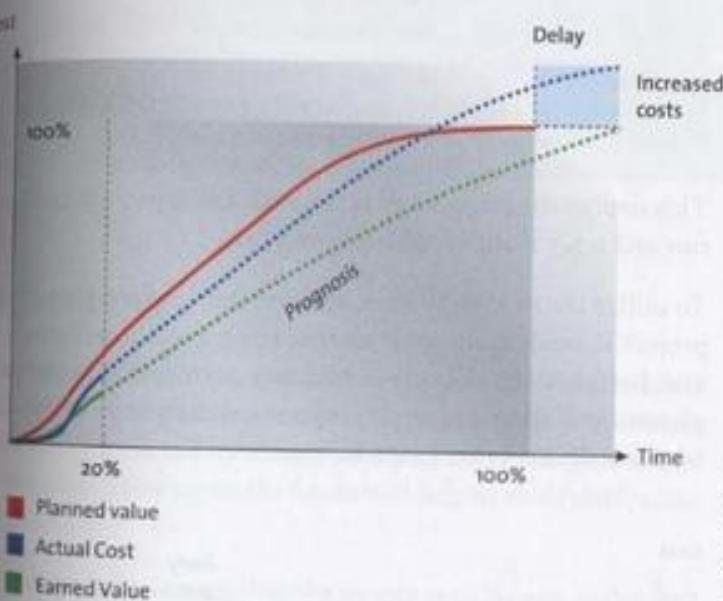
The earliest known example of applying the EVM technique in Sweden is the agreement between the Swedish Defense Material Administration and the IG JAS Corporation when the fighter plane JAS 39 Gripen was developed. The project was started in 1982 and is one of the largest industrial projects in Sweden through all times.

By using this technique the project manager established in 1987 that the costs would end up 15 – 25 percent over target and the deliveries be delayed by one or two years if the productivity in the project could not be increased. This prognosis turned out to be true to reality. The project was two years delayed and exceeded planned budget by 25 percent, among other things because of the crash of Prototype 1 in 1989. Had the crash not happened, the cost overrun would probably only have been 15 percent and the delay one year.

## 20 PERCENT PERFORMANCE VERIFICATION

The greatest value achieved by using the earned value management technique comes during the first part of the project when accurate project status information is established.

Experiences show that it can be difficult to compensate for earlier delays. Fewer people are usually involved during the beginning of a project. To increase work rate at a later stage when more people are involved is often more expensive, if at all feasible within reasonable bounds. Several independent studies have shown that the key ratios are stable after 20 percent of a project has been performed.



► The 20 percent performance verification often yields a correct prognosis on the continuance. The chart shows a project which will exceed both time and budget plans.

By using the key ratios *cost performance index, CPI* and the *schedule performance index, SPI* it is possible to prognosticate the rest of the project. The cost performance index equals the ratio of the earned value to the actual cost.

$$\text{Cost Performance Index} = \text{Earned Value} / \text{Actual Cost}$$
$$(CPI = EV / AC)$$



► A follow-up of the earned values in the project tool  
Primavera shows exactly how far the project has progressed, what the costs are and the forecasted completion date of the project.

The schedule performance index equals the ratio of the earned value to the planned value.

$$\text{Schedule Performance Index} = \text{Earned Value} / \text{Planned Value}$$

$$(\text{SPI} = \text{EV} / \text{PV})$$

The revised estimate of the project's final cost and completion date is calculated using the cost and schedule performance index respectively.

$$\text{Prognosticated cost} = \text{Planned Value} / \text{Cost Performance Index}$$

$$\text{Prognosticated delivery} = \text{Planned Delivery} / \text{Schedule Performance Index}$$

In this example:

$$\text{CPI} = 340 / 370 = 0,92$$

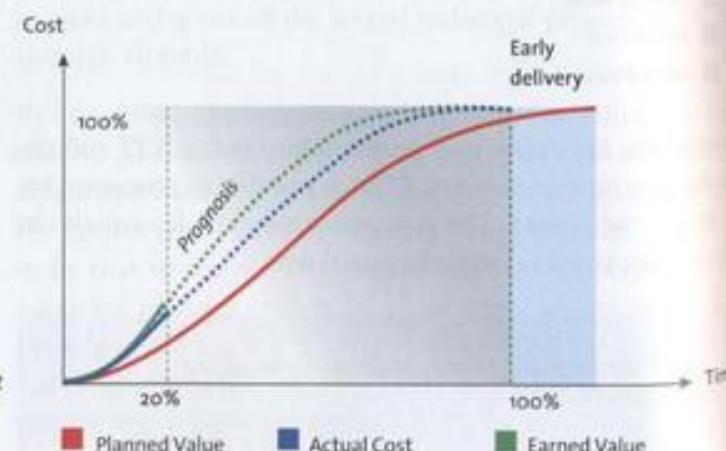
$$\text{SPI} = 340 / 450 = 0,76$$

$$\text{Prognosticated cost} = 1000 / 0,92 = 1087 \text{ labor-hours}$$

$$\text{Prognosticated delivery} = 8 \text{ months} / 0,76 = 10,5 \text{ months after start}$$

This implies the project will finish with a nine percent cost overrun and a 2.5 months' schedule overrun.

To utilize the EVM technique appropriately, information on the project is needed, not only during the project's execution but also before start. A project which is performing better than planned will show a positive prognosis already at an early stage, which is shown in the graph below.



► A project which is on budget and faster to execute than planned.

## Remaining Work

The earned value management technique can be used to prognosticate the final costs of a project, based on the result performed so far and an assessment on how the continuation will proceed.

### CASE A

Actual costs up until designated point in time plus predicted costs of remaining work.

$$\text{Estimate at Completion} = \text{Actual cost} + \text{Estimate to Completion}$$

$$\text{EAC} = \text{AC} + \text{ETC}$$

### CASE B

Actual costs up until designated point in time plus remaining budget.

$$\text{Estimate at Completion} = \text{Actual cost} + \text{Budget at Completion} - \text{Earned Value}$$

$$\text{EAC} = \text{AC} + \text{BAC} - \text{EV}$$

### CASE C

Actual costs up until designated point in time plus remaining budget modified by the cost performance index.

$$\text{EAC} = \text{AC} + (\text{BAC} - \text{EV}) / \text{CPI}$$

► Three different methods of estimating the final costs based on the different ways of forecasting remaining work.

## CASH FLOW

The project manager must at all times be in control of the debits and credits in the project and see to it that there is sufficient money left for the outstanding activities. Cash management and continuous follow-up on the funds will help to avoid unpleasant surprises.

A good way of ensuring that the money is sufficient, is through continuous check and balance on what is left in the project's budget, and to assess how many activities the funds can cover.

If the project performs according to plan the money should be sufficient, but if the productivity has been lower than planned a problem will arise if no contingency reserve exists. If the money is not sufficient the project has to be re-prioritized or the sponsor will have to supply more funds.

It is important to consider customer claims and accounts payable when the available funds are estimated. It is not uncommon that a payment on an invoice takes place quite some time after the invoice has been sent, which means the project will be short of money. On the other hand, not all contractors are particularly speedy when it comes to invoicing either, which means credit can be postponed. It is equally important to monitor the all internal resources document and continuously report their labor hours.

## RISK RESPONSE

The *risk analysis* is a living document that needs to be updated continuously. Some of the risk events which were identified and evaluated during the planning might be irrelevant. They might be a thing of the past, due to activities that are already executed or potential threats that have been eliminated. It is the project manager's responsibility to keep the risk analysis updated by reevaluating, and when necessary, change risk values, remove irrelevant risk events and include new risks.

### Critical Response

Something is bound to be missed during the planning phase. Sometime critical events occur which need urgent attention despite the fact they are not found in the risk analysis. A swift and effective method to avoid congestion is to come up with a *workaround*, i.e. finding a solution which temporarily minimizes the consequences of the risk event. When the critical state has passed and some distance to the event has been created, it might be possible to find a permanent solution to the problem.

### Commitment and Personal Accountability

A project must be able to immediately react to changes around it. The organization needs to make swift decisions. For most companies the immediate reaction and adaption to new prerequisites is simply a matter of survival. It is necessary for a decision-making organization that individuals are duly mandated to make decisions. Personal accountability and mandates have to go hand in hand.

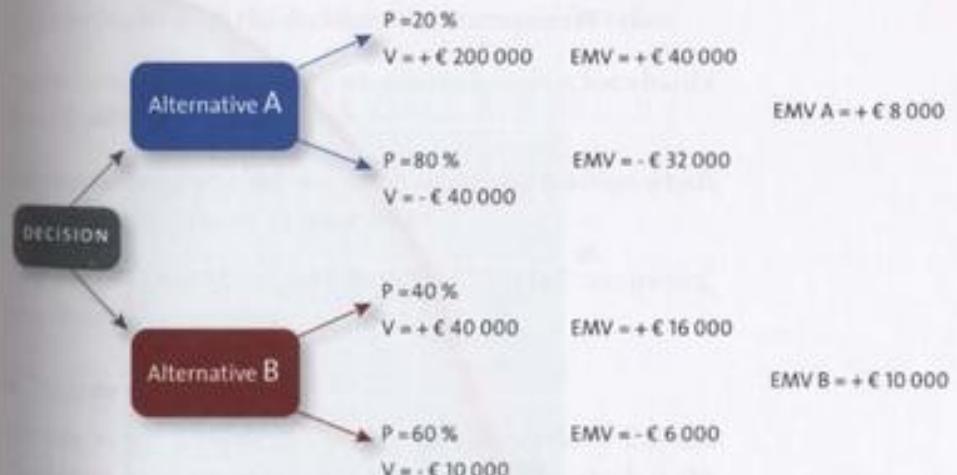
## Expected Monetary Value

It is imperative to be able to assess the monetary value of several alternative actions before choosing which way to go. The *Expected Monetary Value*, EMV, is based on the *risk probability* and the *risk value*.

The example below shows alternative A with a 20 percent probability on reaching a revenue of €200 000 and an 80 percent risk of causing a loss of €40 000. Alternative B is on the other hand thought to, with a 40 percent probability, yield a revenue of €40 000 or a loss of €10 000 to a 60 percent probability.

$$\text{EMV - Expected Monetary Value for alternative A} = \\ 0,2 \cdot 200\,000 - 0,8 \cdot 40\,000 = 40\,000 - 32\,000 = 8\,000$$

$$\text{EMV - Expected Monetary Value for alternative B} = \\ 0,4 \cdot 40\,000 - 0,6 \cdot 10\,000 = 16\,000 - 6\,000 = 10\,000$$

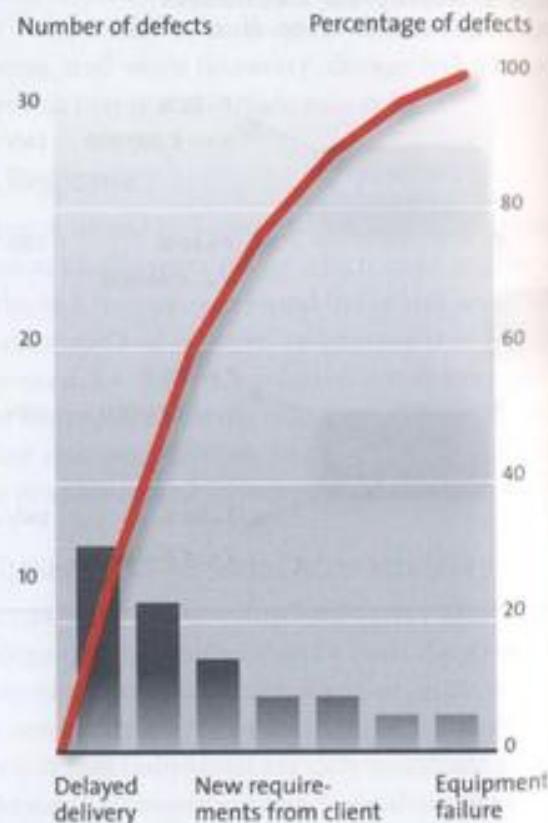


► Alternative B yields the most favorable result and should be picked despite the fact alternative A could yield a higher windfall.

## QUALITY REVIEW

Through empirical studies in the 19<sup>th</sup> century, the Italian economist Vilfredo Pareto observed that there is a particular correlation between how often an event will occur and the consequence of the event. Approximately 80 percent of the events come from 20 percent of the causes. This is described in what is called the *Pareto Principle*, or the *80/20 rule* which has proved to be useful in most areas and a common rule of thumb in business.

A *Pareto chart* is a histogram where events and values are plotted and arranged in descending order. The result can be used to guide the project manager when he needs to prioritize measures to correct deviations and unwanted effects. Obviously, there should be a strong focus on the events which cause the greater problems for the project.



The Pareto chart.

## Continuous Improvements

The American statistician W. Edward Deming developed during the 1930's the theory of "the advancement of quality". The theory won wide acclaim in Japan after the Second World War. This is considered by many to be one of the reasons why Japan had such success on the world market during the postwar years.

The *Deming Prize* for the advancement of quality improvement was established in Japan the 1950's, but it lasted until in 1980's before the US acknowledged Deming's arguments. "The advancement of quality" can also be applied in projects.

Deming's arguments can be summarized in five points:

- ① Product development must be viewed as a process where both the customers and contractors are included. The customer is the most important party. Cooperating on quality improvement with the contractors is also vital.
- ② Quality is determined by the senior management and will never be better than the decisions the management takes.
- ③ Apply continuous quality improvements based on Shewhard's Plan-Do-Study-Act approach.
- ④ Improvements in one link will generate a chain reaction which leads to improvements in other links.
- ⑤ Any new knowledge should be taught to other companies, organizations even competitors.

## The Theory of Constraints

According to the Theory of Constraints developed by Eliyahu M. Goldratt in 1997 every system has "one link which is the weakest in the chain". This limits the entire system's performance. To enhance other links will not improve the system's performance. The method is usually known by the name the *critical chain*, which was also the name of the novel in which it was introduced.

The process is most effective when a harmonious relationship between all parts and/or parties exist. Everybody involved in a project should perform exactly what is expected of them and not underachieve, nor overachieve for that matter.

The weakest link in the project should be improved and measurements should focus on reasons, not symptoms.

## TO INITIATE CHANGES

Changes must be recorded in the project plan and other documents that hold information which might be affected by those changes. This is to ensure that the work will follow the new direction.

The project's original plan therefore needs to be updated and provided with a new document version control number for every decided and approved change made.

Keep in mind that every decision is made in real time. This is something every project manager must learn to accept, according to the grand old man of projects, Torbjörn Wenell.

Project models, methods and tools are not sufficient to succeed the unexpected and unpredicted needs to be handled too, and this is indeed a skill that demands practice. The demands on the project manager to both have the physical stamina and to tackle changes are high. Flexibility and change management plans are the keys to success.

# PROJECT MANAGEMENT



# To Manage and Work in Projects 10

To be able to perform well in projects, it is necessary to manage yourself. Self-knowledge is demanded. This is equally important for the project manager as well as for the project group's members; the project manager should continuously encourage them to advance.

## SELF-KNOWLEDGE

THE GREATER self-knowledge you have, the better the odds are of understanding the surrounding's reactions on your actions. A lack of self-knowledge and trying to be someone you are not, might result in mistakes and getting yourself into unfavorable situations.

Self-knowledge means:

- I know who I am.
- I know how others perceive me.
- I am aware of how others are affected by my behavior.
- I know how I am affected by others behavior.

You have to accept who you are. When this has happened, a change can take place and you can take responsibility for your own personal development.

*"Only when you have broadened your personal leadership is it possible to become a good leader for others. Good leadership conditions the ability to develop and establish the right values in the organization".*

*"The myth about the perfect leadership", Stefan Boëthius and Martin Ehlin*

"There is always one basic principle in leadership. Even so when it comes to soccer. First and foremost the leader must master the subject in question and dare to be true to him or herself. Do not ever try to be something you are not, because this will soon enough be revealed".

Sven-Göran Eriksson, former manager of the English National Soccer Team.

#### Johari Window

Known to others

Not known to others

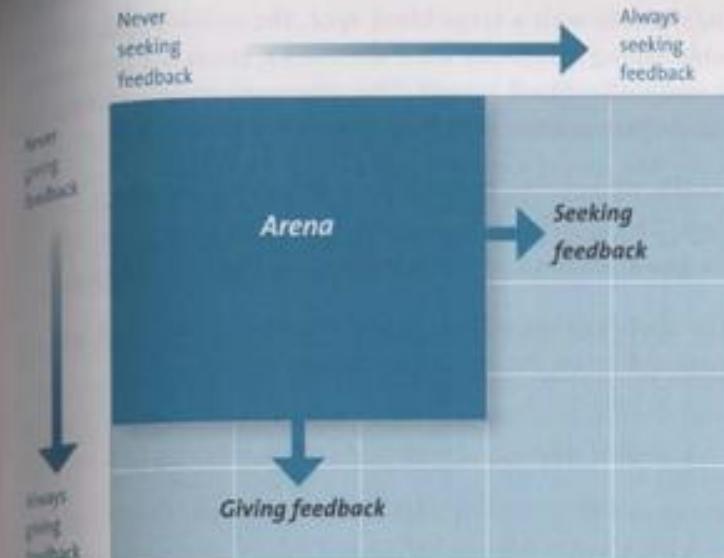
Known to self	Not known to self	
Known to others	<b>Arena</b> Official picture Commonplace issues Apparent Visible	<b>Blind spot</b> Body language Outsiderness Attitudes Embarrassment
Not known to others	<b>Façade</b> Dreams Knowledge Private Secret Biography The Jante Law Shame, guilt, taboo	<b>Unknown</b> Unknown Repressed Has yet to happen Insignificant?

The arena quadrant – What I know about myself and what others also know. This is my official self. The arena is also called the open quadrant.

The blind spot quadrant – What I do not know about myself, but what others know. The quadrant is often called the "quadrant of bad breath". Others feel the smell, but I do not.

The façade quadrant – What I know about myself, but the group does not. The quadrant is often called "the secret quadrant". This is my private information which I will not reveal. The façade is also called the hidden quadrant.

The unknown quadrant – Represents behaviors or motives which are not recognized by me or the group. Some of these issues are buried deep down and may never recognize them.



► Your arena, i.e. the official you, expand when you give others feedback and receive feedback from others.

By expressing what you feel and think and by giving feedback, the façade is reduced. The group is informed of my standing and do not have to play the guessing game. By encouraging colleagues to give feedback your self-knowledge is reinforced. The blind spot is thereby reduced.

A person with a large arena has great self-knowledge. This makes her confident in the group and this will then populate to the others in the group. The open person is perceived straightforward and approachable. To have a large arena equals revealing much about oneself, and this demands courage. Unfortunately, too much openness is not always appreciated. It can be perceived as intrusive, especially during casual business meetings.

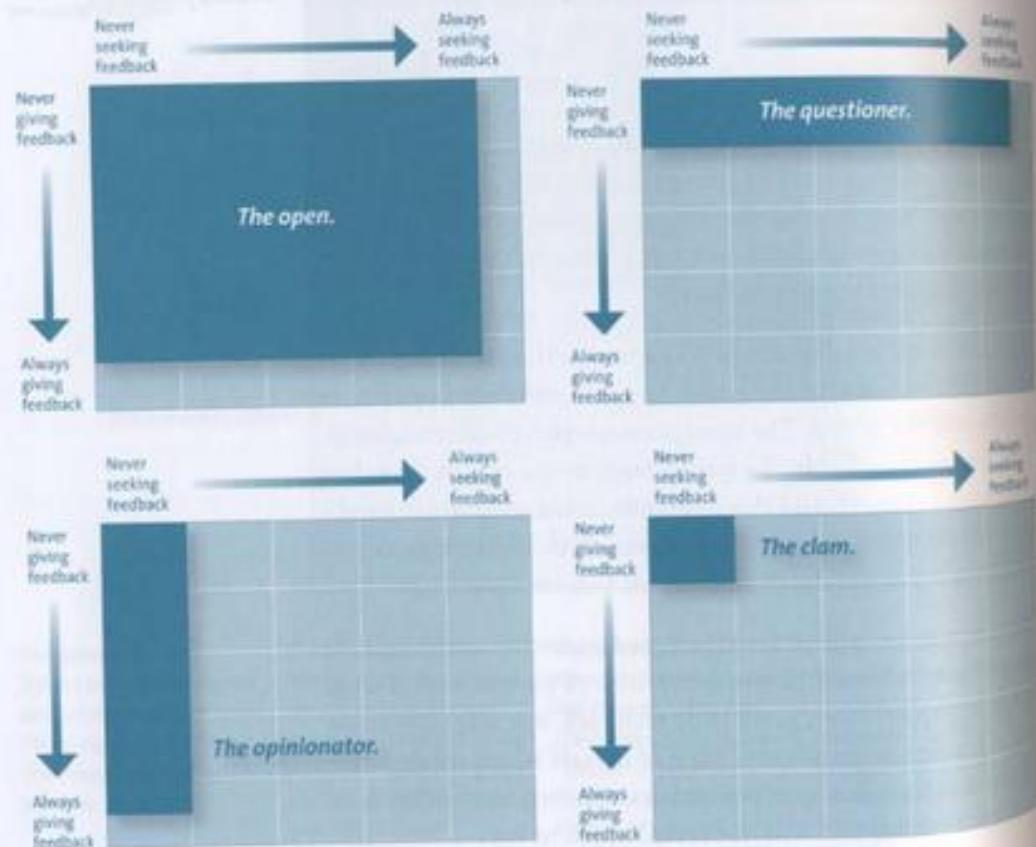
Not everyone has a large arena; most of us, on the contrary, hide more or less behind different behaviors. A person with a large façade, the questioner, gives little feedback but wants to know a lot. This person shows very little of herself which might cause suspicion in the other group members. Consequently, they hold back information and will not reveal much to her.

Individuals with a large blind spot, the opinionator, does not mind telling everybody what she thinks, but is not open enough to receive feedback herself. This obstructs communication and affects cooperation with in group.

Finally there is the individual with a great unknown self, the clam. She is difficult to get to know. This means the others in the group do not know this person's opinions and feelings.

The clam will not take an active role in the teamwork and will soon end up on the sideline in the group.

► The illustrations show four personalities with arenas of different sizes.



## FEEDBACK

Feedback is one of the project manager's best tools when it comes to personal development and the progression of the project group. Feedback means getting both praise and criticism. Unfortunately, the word criticism has negative sound to it, but it is actually a neutral word and describes positive as well as negative experiences.

I have chosen to call negative feedback constructive criticism since criticism should be given for a good purpose. It is about making a person recognize that there is something in her behavior that is disagreeable and to help her change this behavior.

It might be awkward to give and take feedback. When giving feedback one has to make it possible for the other person to recognize and acknowledge what is being expressed.

### Giving feedback

Nonviolent communication, also called compassionate communication or the giraffe language, has been developed by the American psychologist Marshall Rosenberg. By using giraffe and wolf puppets he teaches how to communicate with each other and not past each other.

The wolf symbolizes a person projecting his feelings on the surroundings. He blames his adversities on the surroundings.

There is short way from the heart to the mouth in a wolf. When he feels something he reacts promptly and the brain (the intellect) does not catch up in time.

The wolf does not take any time to reflect over why he experiences a situation in a certain way. The wolf is recognized by the way he expresses himself.

Typical wolf-expressions are "you always ...", "can you never ..." and "everybody knows that you ...". Wolves are good at diagnosing others. Unfortunately these observations are often incorrect since they stem from the wolf's own perspective, which is not objective. To be a wolf is to exert power by threatening

Successful leaders give the employees...

— possibilities to advance.

— a feeling of belonging.

— ability to trust, despite perhaps not liking the leader.

— positivism and engagement.

— the will to create results.

SOURCE: OXFORD LEADERSHIP ACADEMY

The I-message

When you  
... behavior ...

I feel/become  
... emotion ...

because!  
... consequence ...

Could you not  
... wish ...

THE I-MESSAGE WAS  
DEVELOPED BY THE  
AMERICAN PSYCHOLOGIST  
THOMAS GORDON.

and trying to get the surroundings to feel guilty. Wolves are often arrogant and ironic.

The wolf might say something like: "you make me sad...", "you make me disappointed..." and "nobody respects me...". This will make anybody who does not know and understand a wolf's behavior feel guilty.

It is not recommendable giving feedback using wolf language. To be attacked by a wolf often means the person who is receiving the feedback find himself in a defensive position since he feels under fire. He might also move into a wolf behavior if he does not have presence of mind to realize that what the wolf is saying should be disregarded all together.

The giraffe, on the other hand, has a long way from his heart to his mouth. During the time it takes for an emotion to travel through his long neck, the giraffe has plenty of time to think and reflect on his feelings and emotions. Therefore, the giraffe symbolizes a person who is responsible for his own feelings. He can be just as sad, disappointed or upset as a wolf, but the giraffe is careful to let the other person understand what it is in his or her behavior which is not appreciated.

An effective method of expressing feedback is by applying the I-message which is the core of the giraffe language. Focus is on behavior and not on someone's actual personality. It is important to be specific and only describe something which has been experienced personally. If requested, one can give suggestions on what the person might do differently. Give feedback step by step and give the recipient opportunity to comment.

### EXAMPLE OF VALUABLE FEEDBACK:

"When you do not call home to let me know you are delayed it makes me worried, because I think something has happened. Would you please call the next time".

"When you barge in without knocking on the door first it annoys me, because I feel you do not trust me".

Positive feedback can be given before a group, while constructive criticism should be given in private. Focus on the essentials; issues that can actually be affected and changed.

A project manager should make sure she provides opportunity to give feedback in the group by creating a receptive atmosphere and encouraging the team members to regularly give feedback to each other. Even a project manager needs feedback.

### Exercise in Giving Feedback

A group can develop skills in giving feedback by doing this simple exercise which consists of the following:

1. Provide each team member with a bunch of blank cards and a pen.
2. Ask all participants to write three cards with positive feedback and one card with constructive criticism for each and every member of the group. Put the name of sender and receiver on every card.
3. When everybody is done the feedback session starts.
4. Focus on one person at a time by reading all feedback on that one person.
5. Conclude the exercise by giving everybody an opportunity to reflect on their experience of the feedback session; giving and taking.

My experience tells me, after having done this exercise in more than one hundred project and work groups, that it releases a lot of energy and that a positive aftertaste lingers. It is very seldom



someone is offended by the constructive criticism. The criticism you receive is usually already known to you and something you wish you had the ability and discipline to do something about.

The positive feedback the group gives is a pleasant boost to the self-confidence.

If the group is large reduce the positive cards per participant to one or two.

### Receiving Feedback

When receiving feedback it is important to really listen to what's being said. Listening entails being quiet, looking at the speaker and trying to understand what is being said. If you move into a defensive position or try to explain away, the opportunity to learn is lost. It also shows a lack of respect for the other person and his feelings. To receive feedback is described in the following model:



It is a good idea to verify what you have heard by summarizing the feedback in your own words, so called paraphrasing, and ask for clarification if necessary. It is then time to respond to the feedback received.

It is not always the feedback you are getting is relevant or that is correct. It is up to the receiver to decide if she should accept or reject what was said. It is also up to her to decide if she intends to change her behavior or not.

*"If you continue doing what you have always done, you will achieve what you have always achieved."*

### SELF-LEADERSHIP

Having clear and defined goals and knowing your priorities are two important prerequisites to perform effectively. This goes for the professional as well as the personal life.

It is easy to feel negative stress and a constant feeling of having too little time for everything without clear and defined goals and an understanding on what is most important. A day is just a day, but we all utilize it differently.

Without clear and defined goals it is very plausible that you work more than necessary. It does not matter how great a plan you have if the goal is not defined.

A typical mistake many make when stress is catching up with you is to increase the work rate. Efficient time utilization is not about working faster, but smarter.

### Balance Your Life

Make sure you have a good balance between what needs to be done within the project and other commitments. Personal development is important in order for the project work to feel meaningful and stimulating.

To do your duty at the expense of your own wellbeing is seldom a good idea, not for you nor the project. Nobody who works day and night is efficient.

Make sure to allocate time for family, friends and leisure-time. The individual goals set during the initiation of a project should be concrete and realistic, just like the project's goals.

We all have a tendency to put down more time on what is fun, at the expense of what is boring. We often prioritize delegated tasks before we take our own tasks into consideration.

As a project manager it is important to learn to prioritize the tasks to be performed, and to concentrate on what is most important for the project.

It is easy to fall for the myth that success is based on luck, especially others' success. But luck is predictable and not just random. To achieve what you want you need to expose yourself to the opportunities.

You will reduce your chance of catching an opportunity if you are not prepared, and luck will pass you by. If you have difficulties defining a specific goal focus on a certain area instead.

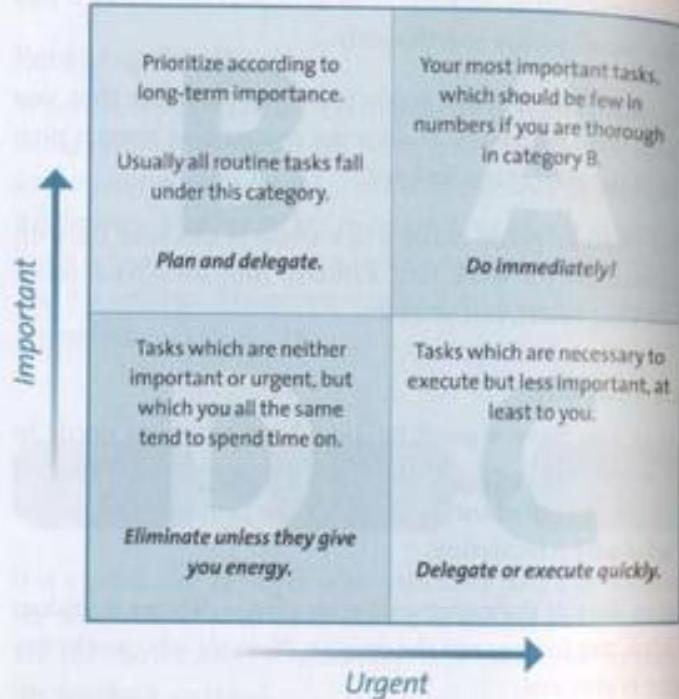
Be inspired by others whom you consider successful. Do not look at what they have achieved but how they got to where they are today. The details separate the amateurs from the professionals. Successful people act, reflect and learn from their experiences.

Analyze successful projects you have been involved in. What was it that generated a positive result? This is a useful change compared to analyzing what you did not succeed in.

A simple method of prioritizing tasks is to apply the ABC method (also referred to as the Eisenhower method), which has been further developed by Stephen R. Covey in his book "The Seven Habits of Highly Effective People". It entails categorizing tasks in four groups. These are graded and ranked according to importance and how soon they need to be executed.

#### ► The ABC Method

Focus on the A tasks, plan and prioritize B tasks, solve or delegate C tasks and eliminate D tasks. Do something fun or pleasant with the available spare time.



#### Self Management Leadership – SML

SML is a course that focuses on developing "inner leadership". The course is a chance to stop and earnestly reflect on where you are now and the next chapter in your life.

##### Inner Strength

The ability to lead others through turbulent and continuous changes is a skill every leader should master. SML is about better leadership through enhanced self-knowledge. A person who can keep his cool in a critical situation, is one people will turn to for guidance and leadership. To handle your own reactions inner strength, self-knowledge and humility is needed. It is the individual's personal abilities and inner nature which has to be identified, cultivated and developed to become a good leader. Evaluating yourself based on what you do for a living and what you perform might build a hard barrier around a soft and fragile inner.

##### Personal Planning Model

SML is built on a personal planning model for organizational development which is applied on "the self". You do a situational analysis and define your own strengths and weaknesses. You explore purpose, personal values and clarify your vision for the future. This is the core of the model which provides force and motivation to create a strategy and a road map.



► The model is like a compass where the four cardinal points represent the past respectively future and hard respectively soft factors. Origo, the axis of the four coordinates, represent where we are in life presently. During an SML course the model's eight steps are methodically worked through.

Step 1 - My story	What have I arrived from and what have I learnt?
Step 2 - Insight	My strengths and weaknesses.
Step 3 - Purpose	The purpose of the next chapter in my life and career.
Step 4 - Values	The foundation of my choices and decisions in the future.
Step 5 - Vision	What I become when I act from a clear and defined purpose.
Step 6 - Barriers	What hinders me from reaching my vision.
Step 7 - Choices & decisions	Specific actions I intend to take to break down my barriers.
Step 8 - Action plan	The small victories to be achieved. The first step!

SOURCE: OXFORD LEADERSHIP ACADEMY, LICENSED TO BRAHMA KUMARIS.

SML is developed by the management company Oxford Leadership Academy in cooperation with the Brahma Kumaris World Spiritual University. SML is an interesting mix of modern management tools and eastern wisdom and philosophy.

## LEADERSHIP MANAGEMENT

It is not only the final result which determines if a project manager gets more opportunities to run projects, but most certainly also his ability to cope with a range of situations and managing people. There is much talk these days about the importance of having social competence. What is that? The opinions are many and diverse, but in principle it is about being able to behave according to accepted social norms. A project manager should be able to interpret situations, command relevant codes and be credible.

The project manager's behavior impinge on the entire project and its surroundings and is of great importance for the relationships that arise between the participants in the project, both internally and externally. This is equally important for the success of the project, as knowledge in project methodology and specialist skills is, e.g.

The project manager should be aware of his behavior and is able to adapt to the project's situation and the demands of the surroundings, just as any issues that concern the project are continuously adjusted and adapted. This is possible because behavior to a certain extent is planned utilization of personal traits. It is therefore important not to promise more than what is possible to accomplish, establish decisions well and continuously keep the sponsor updated, especially on such issues which might affect the project in a negative way.

### Attention

To be noticed is a basic need in all people. There are not many methods which can more effectively break down a person, than through nonchalance. Some superiors have a certain knack of unconsciously or perhaps consciously, ignoring selected employees by not considering them.

Tom Peters, who became famous in the 80's through his best selling book "In Search of Excellence" which analyzed success factors in a number of America's then best run companies, said to have expressed that "Leadership equals attention".

We people are social beings and we want to be noticed for what we are and what we do.

The importance of being noticed cannot be underestimated. We probably have the same need for attention and recognition of our accomplishments regardless of national and cultural belonging. On the other hand, every individual's cultural and national belonging does determine which way this attention should be delivered.

The positive feeling of being acknowledged can easily be spoiled and the effect might be the opposite if a person feels constrained. If the project manager needs to verify what the employee is doing it shows a lack of confidence. To be monitored and controlled is often associated with a lack of trust and confidence.

Reviews and follow-ups are positive laden words. An individual cannot be reviewed and followed up, but can be monitored and controlled and that does not at all bring about a positive feeling.

### Expectations Influence Employees

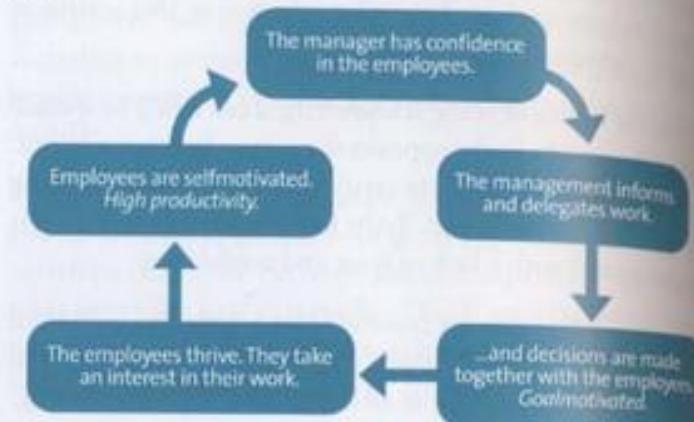
In the beginning of the 60's the American management professor Douglas McGregor studied what happens in a team with a manager who has negative, respectively positive expectations on the employees. The result was called Theory X and Theory Y.



McGregor's Theory X.

According to the Theory X most people have a dislike for work and responsibility; therefore they must be guided and controlled. If the management does not intervene, these individuals will be passive or even counterproductive in reaching the project's goal and the company's needs. Threats of penalties and promises of rewards are considered effective methods to get the work done.

#### — McGregor's Theory Y



According to the Theory Y it is a natural trait in people to strive higher and to want responsibility and recognition. The management is responsible for supplying and organizing the resources needed to achieve the financial goals. According to the Theory Y individuals are an asset and the management should work to align the company's and the individual's goal.

McGregor emphasizes that a leader often gets the employees he deserves. If he does not delegate responsibilities or mandates, he will not accomplish anything without minutiae controlling. It is obvious that a project manager cannot control the ins and outs since he will not have the time to manage the entirety of the project then. If a manager instead shows confidence in his team members' capacities, they will strive not to disappoint him.

## The Pygmalion Effect

Most people are familiar with the unforgettable story about Eliza Doolittle, the Cockney flower girl from London, and Henry Higgins, a professor of phonetics. He was convinced she could become a society lady by teaching her how to speak with an upper class accent and training her in etiquette.

Another example of this which has come to be known as the Pygmalion effect, or more commonly known as the "teacher-expectancy effect", played out a couple of years ago in an American high school when a class was given a new teacher in the middle of the school year. The story may be an urban myth, but the point is still valid.

In a book, the previous teacher had very meticulously noted all the students' test results and other assignments in the various subjects. This was of great help to the new teacher. With the support of the book she could quite easily form an opinion on the students' abilities.

The book was simple to follow, every subject had a column. There was just one column she did not quite get. There were just numbers in it. It was 85, 90, 105, 88, 108 and so forth. After having thought about this for some time she reached the conclusion that it had to be the IQ scores of the students. Good, she thought, now I know who needs more encouragement and support and whom to give more difficult assignments.

Her conclusion was confirmed over time. The bright students managed increasingly difficult assignments. The average students followed the curriculum while those with lower IQ scores needed a good deal of support.

When the teacher inspected the student lockers by the end of the term she realized that the numbering of the lockers coincided with the column on IQ scores. Those with a low IQ had a locker with a low number and those with a high IQ had a locker with a high number. Was this a coincidence?

Of course not. The teacher had influenced the students' performances through her actions. By exhibiting confidence in certain students' capabilities, she strengthened their self-confidence and through this affected the results in a positive way.

Likewise, she influenced other students into doubting their own abilities by not placing tough demands on them, and by being too generous with support. The average students who were treated neutrally performed on average too.

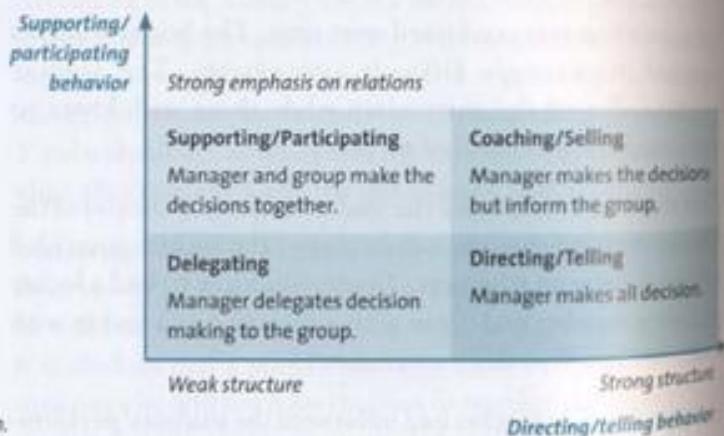
## SITUATIONAL LEADERSHIP

The project manager needs to adapt her leadership style according to the situations she finds herself in and the people she has to manage. The leadership style should also be adapted to what kind of project and in which phase of it she is in.

### Leadership Styles

Paul Hersey and Ken Blanchard have developed a concept for *situational leadership*. According to their theory there are four different leadership styles: directing/telling, coaching/selling, supporting/participating and delegating.

The situational leadership theory can be related to the FID-model. An immature group which is in the inclusion dimension needs supervision, while a group in the control dimension needs lots of support. A mature group in the affection dimension should on the other hand not be supervised nor supported, but guided through delegation of assignments.



► Situational leadership.

Everybody knows there are differences in leadership between countries. Generally, a Swedish leader has a tendency to practice a supporting/participating leadership style. We Swedes are good at delegating and letting the group participate. But, we are poor when it comes to leadership. The Swedish boss is often scared of sticking out his neck and making decisions without consulting the group first.

He really wants the group behind him in the decision-making process. Spending time on this process can be a good idea in many situations, but may also be perceived as weakness, if exaggerated.

In the beginning of a project a directing/telling manager is needed to establish unwavering confidence in the project and what is expected of each and every team member. The project manager is expected to take the lead and this is best done by being specific and clearly communicating what is expected of the group.

Despite the lack of obvious leadership most Swedish projects are successful due to the fact that most project team members feel greatly responsible for their tasks and seldom have experience of directing/telling project managers and leaders otherwise.

The foremost reason for projects being in dire straits is lack of management. Inadequate directives and bad information causes people to "fill in the blanks" and do what they consider need to be done.

Unfortunately, it is common to overestimate the level of difficulty in a task and underestimate own ability, which inevitably leads to stress and in worst case scenario complete exhaustion.

Demands	Perceived very demanding	Are in reality often much less demanding
Ability	Perceived less demanding	Are in reality much more demanding

There are obvious cultural differences between countries. There are great differences even within Europe, which is no larger than North America. The Belgian leadership style and staff management is very different from Sweden. The employees in Belgium expect the manager to be directing/telling on all matters. If the manager is not present and controlling during the onset of the project very little will happen. On the other hand, the team is often on its own during the actual execution phase.

The support the Belgian manager gives is not as extensive as the support given by his Swedish colleagues. The responsibility

around executing the project is therefore largely placed on the group as an entity, as opposed to the Swedish way where the manager usually takes part in the work. The disadvantage with the Belgian leadership style is that usually the gap between the manager and the employee is of significant size. This might be a problem if there are changes and fast decisions to be made.

On the other hand, the Swedish leader often has a problem of letting the team work independently, since he sees himself as a part of the group and forgets his managing role – a role that demands some distance to the group.

Too much support to a mature group found in the affection dimension may impede commitment and motivation. If a project group is to succeed the project manager must show trust and confidence in the group's ability to solve the assignment.

This is why the project manager has to learn to step out of the group and trust that it will perform on its own. Do not, however, forget that the group needs to know that the project manager cares about it and that he himself considers the delegated assignments important.

## Delegating

When a project manager delegates a task it is also important to consign power to the task owner for her to be able to execute the task. Responsibility can never be delegated, the project manager is always sole responsible before the steering committee and the sponsor.

First and foremost the project manager must determine which tasks to delegate and who is appropriate to delegate to. Passing on assignments is not to be viewed as punishment, on the contrary as challenges and encouragement.

It is prestigious to be delegated an important assignment. The purpose of the delegation is not to give the group more work, but better work assignments. If the project group does a good job, the project manager is seen as a good manager. Workaholics are poor at delegating and are as such ineffective leaders. Delegation does not equal abdication.

One of the main tasks a project manager has is to delegate. To replace yourself gives you the chance to be promoted to better and more interesting projects. It reinforces the project manager's as well as the team members' competence. It is important to review every delegated assignment in a correct way. The reporting method and time of presentation should be predetermined when the task is assigned.

## MOTIVATION

How a group works and solves its problems is dependent on many factors. E.g. what the group members feel for the assignment, and their attitude and will to give and take from each other. Cooperation even affects individuals' ability to listen and communicate in a creative and constructive way. It is also of importance how much interest the group has in trying new ways to learn and solve problems.

The group has a better chance of developing in a positive direction, if it is challenged on coordination and joint problem solving, where all individuals' competence is utilized. The project manager plays an important part of this by establishing the project's purpose and goal with all participants, delegating tasks and by showing an interest and appreciation for their work. To place demands is also a way of showing consideration. It shows that the assignment is important and that the result does matter.

People with a fundamental positive attitude are often easy to manage. They are motivated and view the project as a possibility to strengthen their own personal competence. The project's purpose and goal may just be sufficient to motivate these individuals.

## Encouragement to Take Own Initiatives

To encourage, utilize and further develop others' ideas is important when trying to motivate and create enthusiasm. Some people share and assist in every way with pleasure, while others mind their own business.



One method is to create incentive which encourages the project members to share and cooperate. Incentives are meant to motivate the individual into a certain behavior that incites the project.

For an incentive to be consequential it has to be individually adapted so to be seen as a reward and a positive gesture. There are no all-purpose incentives or rewards since different people are driven by different motives and needs. A project manager needs to learn to recognize the different human traits.

Every attempt to get someone to want to do something by offering a reward is an attempt to apply external conditional motivation. Money is usually a good motivational factor, but it is not the money as such which is motivating, but what you can do with them. It is acceptable to work with financial incitements if you find a well functioning system to identify and evaluate what is to be rewarded.

Key values that are produced in the reward scheme should be simple, unambiguous and possible to achieve. They should cover everybody in the project and not just favor certain individuals with specific knowledge and proficiency or roles.

### Intrinsic Motivation

True motivation comes from within. The intrinsic motivation is long-term as opposed to the extrinsic motivation which only exists as long as the reward is accessible. Most organizations have problems motivating their employees, one way or the other.



Knowledge on motivators is essential to create adequate incitement and reward schemes that are individually adapted. Basic understanding of what motivates different people is necessary when designing an incentive scheme. First and foremost a realization of the fact that what motivates me, does not necessarily motivate my employees at all.

every human being is unique. It is therefore important to design appropriate work tasks for every individual's motivation. By carrying out a simple test like the following, it is possible to find out what motivates your employees.

Ask the employee to tell you about:

1. Work or assignments she has had during the last six months to a year that she was really pleased with. What role did she play and what did she contribute with?
2. Hobbies and other interests she has outside of the office. Ask her what she would do more often if she had the time?
3. Ask her what she has always wanted to do but has never done. Because of lack of courage, time or money or other reason.

By searching for a common pattern in these three areas you can with great probability find out what motivates every single employee.

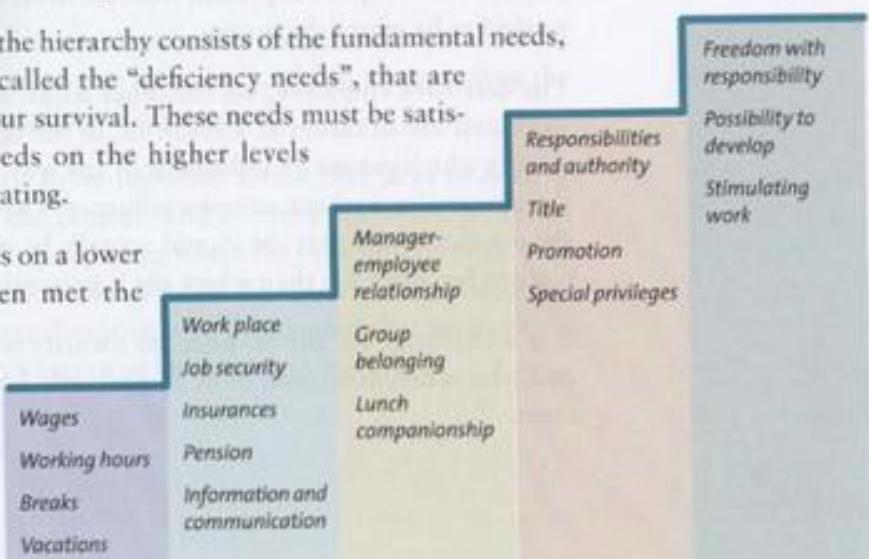
### Abraham Maslow

Probably the most famous motivational theory comes from Abraham Maslow's Theory of Human Motivation which is based on the fact that people have a number of fundamental needs that can be arranged hierarchically.

► *Maslow's hierarchy of needs.*

The bottom of the hierarchy consists of the fundamental needs, what Maslow called the "deficiency needs", that are necessary for our survival. These needs must be satisfied before needs on the higher levels becomes motivating.

When the needs on a lower level have been met the individual



will turn his interest towards satisfying his needs on the next level. If the physiological needs are satisfied the person's energy goes towards obtaining security and safety, followed by social relations and last but not least self-esteem by accepting himself internally.

More than likely the basic needs in the project group are already satisfied. They therefore have a greater need of feeling connected in the group and of being appreciated for their performances.

### **Frederick Irving Herzberg**

External factors like wages, physical work environment and work conditions only yield an acceptable level of work satisfaction, while inner factors such as performance, recognition, responsibility, power and the possibility to advance yield a greater level of satisfaction. According to Herzberg's theory the external factors need to be satisfied before the internal.

The individual needs to feel he has fair earnings and a pleasant work environment, before the desire for responsibility emerge for real. What one individual deems fair and pleasant may not be another individual's opinion.

### **Offensive and Defensive Employees**

In addition to the basic needs it is possible to divide employees in two main groups: offensive and defensive. The offensive employee has shaped her present work situation and has actively worked to be where she is now.

The defensive employee, on the other hand, experiences her work and life situation as a result of, in her opinion, circumstances which cannot be influenced in any way. Something has just come to be, without any own influence. The latter feels as if she is a victim and that she should actually be in a much better place in her work life than where she is presently.

It is a challenge for the manager to identify who is offensive and who is defensive, and more importantly how to deal with them.

## **CONFLICTS**

Feelings can arise from system characteristics and involve goals, roles and structures. They can also derive from a human perspective and deal with human values and interpersonal relations. Feelings can also be individual and have their origin in bad conscience or lack of self-respect.

*"Conflict is a state of discord caused by the actual or perceived opposition of needs, values and interests. Conflict as a concept can help explain many aspects of social life and social death such as social disagreement, conflicts of interests, and fight between individuals, groups, or organizations. A conflict can be internal (within oneself) or external (between two or more individuals). Without proper social arrangement or resolution, conflicts in social settings can result in stress or tensions among stakeholders."*

(Definition of "conflict", Merriam-Webster's Collegiate® Dictionary, Eleventh Edition)

The dominating feelings are anxiety, disappointment, irritation and aggression. These emotions can easily nourish a defensive behavior instead of a work environment which is focused on cooperation. Defensiveness in one person is easily spread to others. This obviously hampers collective problem solving.

Basically, no projects are executed without conflicts, no matter how thorough the project manager has been when staffing the project and during the initiation phase.

Conflicts are not to be shunned. Often they lead to healthy questioning of the project, and in many instances problems are detected at an early stage where they can still be dealt with whilst avoiding unnecessary costs. The Swedish organizational consultant George Smidlik is of the opinion that conflicts are conscious risk takings in order to achieve something.

*"Conflicts are like shrimp peelings, the longer you wait to throw them in the garbage, the more they smell."*

When tackling a conflict or speak of another opinion than the group, you risk:

- Dissociation
- Hostility
- Being left outside
- Being wrong
- Getting stuck
- Creating negative examples for future reference
- That things will become taxing
- Wasting a lot of time and energy
- Breaking up interpersonal relationships

When tackling a conflict or speak of another opinion than the group, you may gain:

- Intimacy
- Respect and understanding
- Appreciation
- A better working environment
- Positive examples for future reference
- That others realize you are right
- Time and energy
- Better interpersonal relationships

So what are conflicts about then? It could be that the project team members have different opinions on how to plan the project. Everybody's own specialty or area of competence is perceived most important thus resulting in prestigious discussions on various solutions and technicalities. Stakeholders may even have different goals and different opinions on the schedule.

The most difficult of conflicts are the ones dealing with interpersonal relationships. Often, they have their origin outside of the project and may be preceding the project. Despite this, they need to be solved in order for the cooperation in the project group to work. An effective way of creating conflicts is by focusing entirely on you and making yourself the norm.

One common reason for conflicts is the many different viewpoints people have on what constitutes good work efforts. The management articulates the company's objectives, but tools to systematically follow-up and document the employees' productivity to see if they lead to an increased value are often lacking. ProMES, an abbreviation of Productivity Measurement and Enhancement System, is a measuring performance system which is based on all employees agreeing on a collective vision on what creates value and why. Everybody must know what an acceptable performance level is, what a top performance level is and what a poor performance is. The employees are regularly given feedback on their performances.

Not all conflicts can be solved, but it is necessary to deal with them if you want the teamwork to be a success in a project. You very seldom get everything you want, and you will have to learn to accept the flaws.

#### Signals of conflicts looming:

- Productivity drops off
- Quality deteriorates
- Sick leave increases
- Employees quit
- There is a bad mood and many people grumble
- Unease and irritation in the work place
- Sleep deprivation among the employees

When there is an unsettled conflict in a group, subgroups or alliances are likely to form.

The tougher the work environment, the less conflicts arise between the team members. There is no time to reflect over any injustices and to create intrigues. But if the work load becomes larger than what a person considers reasonable, stress easily builds up, possibly creating conflicts within the group or with management.



## Alliances Within the Group

Internal recruiting is one of the most difficult aspects of leadership, since there are many relations to the individuals who are to be managed. There should be a "gap" between the manager and the group to instill authority. Split roles (50/50 project manager and ordinary group member) will inevitably create problems.



Alliances between the manager and some of the team members may lead to conflicts and disruption within the group. Seats are for the chosen few.

According to Gunilla O. Wahlström, who researches in conflicts, a personal relationship between a male boss and a female employee is the worst combination. It makes no difference whether they are married or just in a relationship.



### This is what happens:

1. She will be considered a risk since the other team members think she will tell on them to the boss.
2. Communications between the boss and the group will decrease. He will be updated on everything by bedtime anyway.

3. If/when the relationship ends she will be forced out of the group.

The group's composition and the assignment's character are vital to avoid conflicts.



A well functioning group made up of strong individuals and an unambiguous and accepted assignment.

– *Solidarity*.



Assignment ambiguous or not accepted. Strong individuals but the group is not important.

– *Internal conflicts*.



Dependent individuals who find their identity through the group. Common in groups made up of professionals in uniform.

– *Conflicts with other groups*.

## Power Play

Sometimes people go back to old patterns and behaviors they learnt in their childhood. The argument being that they ~~sought~~ to work just fine in adulthood too... As long as an individual's behavior is accepted he will continue behaving just like that.

Power play examples:

- Pretend like nothing.
- Give up.
- Cry.
- Complain of someone else.
- Joke it away.
- Punishment through silence.
- Physical violence.
- Turn to an authority.

"A strong person must also be very nice."

This quote is by Pippi Longstocking, a fictional character in a series of children's books by Swedish author Astrid Lindgren. It can be translated into:

"The individual with the most power must accept the most responsibility", which is a good point in mind for people in managing positions on how to act. The higher the level, the greater the responsibility.



## CONFLICT RESOLUTION

It is important to deal with conflicts as they are identified. Conflicts that are prolonged just get bigger and bigger and thereby more difficult to solve.

When trying to resolve a conflict, it is desirable to reach some kind of an agreement which satisfies own needs and goals, whilst striving for a continuous beneficial relationship to others. The project manager can choose from various methods when resolving a conflict within the group:

**Accommodate**  
The project manager makes sure the involved parties take action on the conflict and work it out. This method is of course the most advantageous due to its great probability for a lasting result.

**Mediate**  
The project manager or external conflict mediator help the involved parties to find a solution to the dispute. The Quakers have developed a mediating method for conflict resolution which starts by letting both parties tell their story of what has transpired and what they feel.

1. What has happened?
  2. What do you feel?
  3. What do you want to happen now?
- The mediator help the parties find a mutual solution.
4. What is realistic?
  5. Work out a road map.

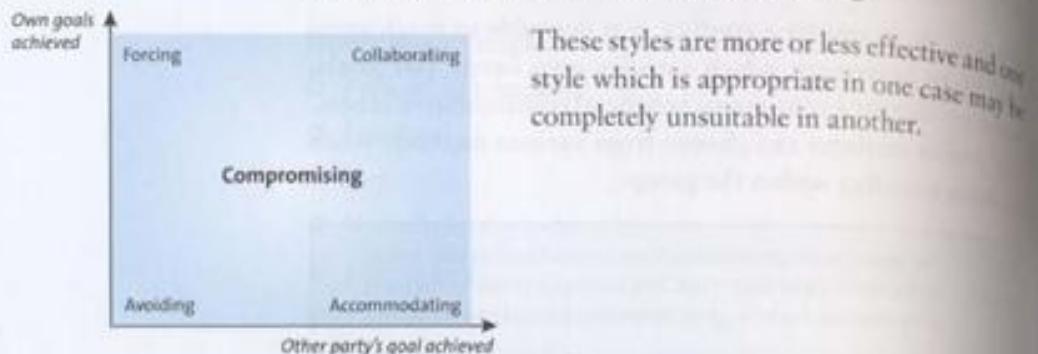
**Divide**  
If none of the above mentioned methods work, the project manager or sponsor must make an executive decision, e.g. one part will have to leave the project.

One method of resolving the deadlock a conflict can give rise to, is by making sure everybody is working on the assignment. The project manager makes it clear to everybody that by accepting their paychecks they have also accepted the assignment.

In order to alleviate and prevent conflicts it is recommendable to try to assess what kind of conflicts might arise. This is done by the project manager in collaboration with the project group. The conflicts may be internal within the group and/or between the project and its surroundings. Take action to diminish the risks of these conflicts.

## Conflict Style Inventories

The Thomas-Kilmann Conflict Mode Instrument, CMI, was developed by Kenneth W. Thomas and Ralph H. Kilmann and identifies five different conflict styles: Forcing, Collaborating, Compromising, Avoiding and Accommodating.



Conflict style inventories	+	-
Forcing	When fast and decisive action is necessary. When unpopular and determined actions must be taken.	May destroy inter-personal relations when fulfilling own goals on someone else's account
Collaborating	When important decisions that have long-term effects are to be taken. Win-win solutions both parties are content with.	Often time-consuming therefore not suitable when dealing with trivial problems.
Compromising	A useful solution if pressed for time.	May result in two somewhat discontented parties.
Avoiding	Postpone a conflict until emotions have cooled off. When dealing with trivial problems and more important issues should take precedence. This conflict does not affect me.	The conflict is not resolved.
Accommodating	Collaboration more important than the reason for conflict. The problem is more important for the other part.	Accommodation deprives respect. When important issues are at stake

## Project Result

11

Implementation is the process which takes place when the project is finished and the final product is to be introduced in the environment which it is intended for. In other words, this is when we start using the result the project has produced. What is part of the implementation and how this process will proceed depends on the project's specifications and scope.

Do not waste the project's value by negligently implementing the final result. This is when the groundwork is laid to ensure a lasting effect after the project has been closed.

## IMPLEMENTATION

IMPLEMENTATION IS usually a part of the execution phase, but may also be a separate phase, or the first thing to do after project closure.

Implementation might be a project in its own, and is then usually called an implementation project. There are no rules on how to do this, but it is most common to make the implementation a part of the execution phase.

It is important to be explicit, and thoroughly specify what is to be handed over to the sponsor. It is not obvious that the implementation is part of the project. The client might very well attend to that phase himself.

What does the client expect from the project? There is a significant difference between handing over a complete product compared to taking responsibility for the performance of the product in the client's organization or production. Test and acceptance procedures are different in the two above mentioned cases.

Construction project	Move into the house. Establish the office. Release traffic on the road or bridge.
Product development	Put product in production. Test the product under authentic circumstances. Carry out the first training event of the course.
System development	Put the system in operation in the client's organization. Train users. Set up an operation and administration organization.
Marketing	Initiate a promotion campaign. Open the fair to visitors. Start selling the service.
Organizational development	Start working according to the new routines. Staff the new sales office. Carry out competence development.

► Implementation examples in different projects.

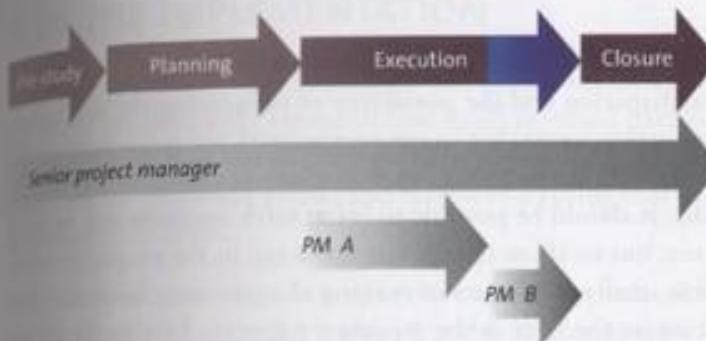
The implementation process has to be planned just as meticulously as the execution itself. Many projects fail in the end due to the lack of an implementation plan.

### Managing the Implementation Process

When a project moves into the implementation phase the prerequisites change. The development is now completed and the result is to be handed over to the client. The implementation phase is very different from the rest of the project and it is often better if a new project manager takes over. A project manager, who is an expert in product development, may not have the right qualifications to handle training, and a builder is perhaps not interested, nor the right person, to be a home moving coordinator.

The purpose of changing project managers is also to utilize resources optimally. You should do what you do best, and leave it to others to do the rest. But, to change project managers in a project involves a certain risk. Information and important knowledge may be lost forever.

The way of maintaining control of the project and concurrently have the best suited project managers in every phase, is by having a senior project manager in charge throughout the project who oversees subproject managers executing the plan.



► This example shows sub project managers (PM A, PM B) who are responsible for development respectively implementation, while a senior project manager has overall responsibility during the entire project.

### New Project Group

The project group's structure may also change during the implementation. Certain team members are no longer required in the project and should be phased out, while others join the group to partake in the implementation.

One reason for replacing people in the project is because it may be difficult to change roles. Other prerequisites and a different focus are considered necessary e.g. when users are to be trained, than when systems and products are being developed.

Another reason might be that many technicians are perfectionists and continuously make improvements despite the development process having been completed. Those who have taken part in the development might be so devoted to their product that they have a hard time accepting criticism that arise from users.

When new team members and assignments are introduced, the group will move back into the "inclusion phase" of the Fager Theory. This results in the dissolution of the teamwork which had hopefully evolved during the project's course. The project manager has to regard the project group as a new constellation and adapt her leadership accordingly.

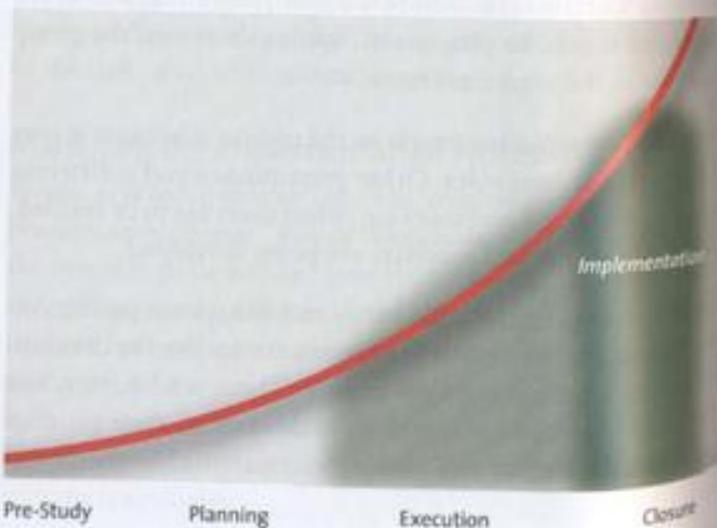
During implementation the project manager needs to take back command and move away from a delegating leadership to a direct managing leadership. This may be difficult if you have become "buddies" with the group.

### Time is of the Essence

Participation and the possibility of influencing the process are important issues, but in connection with the implementation it is best left to the project manager to run the show singlehandedly. It should be possible to bring forth opinions and perspectives, but to allow changes at this stage in the project is unfathomable, really. The costs of making changes increase rather than decrease the later in the process it happens. During implementation it is generally too late to make any major changes.

The project manager must obviously take note of the opinions and perspectives that arise during the implementation, but it is best to wait until the project is closed to address and resolve them.

► Costs when introducing changes in a project.



There is ever a moment during a project where time is of the essence it is during the implementation. Too slow a pace may lead to dwindling interest and motivation overall. The project may then be perceived as half done or not thought through, which brings with it the risk of the result never being introduced or utilized. The sooner the result is implemented, the sooner the effects are realized and the expected returns and/or cost savings are consequently achieved.

## PLAN THE IMPLEMENTATION

The implementation has to be planned just as thoroughly as the rest of the project, and communicated to all involved parties. The project manager should analyze the prerequisites just as she did during the pre-study phase, and review everything that has been done once more.

The purpose of reviewing the project once again is to make sure all changes made earlier are included in the implementation.

The following issues should be documented, reviewed and approved before implementation:

- ① Who is the receiver and responsible for the implementation.
- ② Why the result should be implemented and which needs it is to satisfy.
- ③ The prerequisites for implementing the project's result.
- ④ The situational analysis including all factors for and against the implementation.
- ⑤ Updated stakeholders' analysis focused on the implementation.
- ⑥ What should be performed – S.M.A.R.T. goals.
- ⑦ The requirement specification for the implementation process.
- ⑧ Prioritization of the most important parameter; quality, time or cost?

- Selecting a method to minimize disruption during the implementation.
- How and when the result is to be implemented.
- Clearly defined roles and established mandates and responsibilities.
- Budget specification on activities and calendar time.
- When the implementation should be completed and how it should be approved and acknowledged.
- Risk analysis and response planning focused on the implementation.

The project manager should ask himself if the suggested activities will lead to the desired goal. He should also make sure the budget is sufficient to execute the planned activities.

A schedule on important deliveries should be communicated to the stakeholders to make them feel involved and a part of the project. The project manager should also prepare an introductory program and involve the end-users early on in the process. Everybody needs to understand the purpose of the project to achieve a successful implementation.

### The Implementation Encounters Resistance

All too many projects are carried out without a thought given to whether the result is actually desired for or not, and thus it meets resistance. This is typically because the recipients are unaware of the purpose and therefore do not have the same viewpoint on the organization's needs as those heavily involved in the project.

Those who partake in the project have an informational edge over the people outside of the project. The project manager and the group have often been engaged in the project for a long time and are very well aware of the value the project is meant to create. In their minds they are probably already living in the environment which will be everybody's reality when the project is closed and all stakeholders are satisfied. They sometimes even

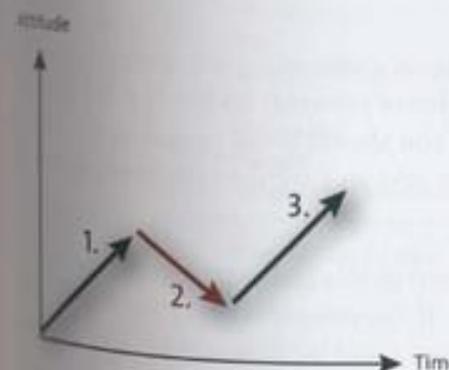
see themselves as heroes who have solved a problem in an exceptional manner.

This is why it is a huge shock to everyone when the appraisals fail to appear and are instead met by resistance and suspicion when encountering the individuals who are going to be affected by the project's result. Even if the employees in a company know that a change is necessary and that they will most likely win through this change, it may still be difficult to execute it.

It is necessary to understand why the changes are required, what the individual gains from them and what kind of affect they will have. Changes are often perceived threatening.

Individuals react differently depending on their personalities when they understand how they are affected by the project. Some immediately see threats and problems, while others see possibilities and opportunities. What is to be accomplished must seem meaningful to those who are affected by the project.

During phase two a person might seem to be in on the changes, but mentally she is not there yet. It takes time to process new information and form an opinion on how the changes affect her and her work. Some people decide that this change is not for them, and as a result of this leave the project or even their job during this phase.



► An individual's reaction to changes.

An individual's attitude to changes goes through three phases:

1. Excitement – finally something is happening.
2. Hangover – realizing what the consequences of the change might be.
3. Positive attitude – understand and therefore accept the change.

## Enthuse and Engage the Organization

It is all too easy for a project manager to forget that others do not know what he does. Do not underestimate the time it takes to introduce and interpret information.

If you are careful to introduce and establish the project in the organization you can realize much more of a project's intrinsic potential. The establishing is a process which purpose is to get the recipients to accept the result before delivery or implementation.

The intention is to get the users on board as soon as possible. There is not necessarily something wrong with the project just because it meets resistance. New routines and work methods may be experienced as an inconvenience at first. It is rather like when wearing a new pair of shoes for the first time; it feels sort of awkward and uncomfortable on the first day.

It is permitted to "take prisoners" when executing projects. This is done by involving key individuals early on in the project and letting them participate and influence; through this they will be part of the decision making process.

These people will then, because of this involvement, actually work for the project and they will do whatever necessary to achieve the goal.

## Reference Group

Prior to the implementation a reference group should be established. This should consist of informal leaders and individuals other people listen to. You should avoid people in the senior management, since they seldom have the time to get involved anyway.

It must be considered worthwhile and meaningful to be a part of the reference group. If the members understand that they can in fact make a difference and the project manager "actually listens", they will participate in the process.

The project manager has to keep the reference group active. This is done by scheduling meetings and by documenting the progression and the result regularly.

## HANOVER

After the project has been executed and the result implemented it has to be handed over to the client. If the project has had a well functioning change management plan with routines which have guaranteed the updating of plans and documents, and the project manager has continuously kept the stakeholders in the loop, the handover should not be complicated.

## Deliveries

Every phase and sub-phase in a project has at least one *delivery* which may consist of a result, a document or a report. Steering committee meetings usually take place between the phases which represent important stages for the deliveries. This is where the project manager presents achieved results and the meeting gives the go-ahead to continue the project. The milestones make up formal delivery deadlines for the project group.

The most important delivery in a project is when the project goal has been achieved. This is usually a coherent delivery, but might also be divided into several smaller sub-deliveries.

Phase	Deliveries
Phase one – Pre-study:	Project charter Pre-study report Solution selection Pilot Requirement specification
Phase two – Planning:	Project plan Budget Resource procurement documentation
Phase three – Execution:	Updated project plan Prototype Status reports Product Documentation Implemented product Test protocol Delivery acknowledgement
Closure:	Final report

► Delivery examples.

If a project is comprised of several, from each other separate components, it may be unnecessary to wait until everything is completed before using what is already produced and ready to utilize. Much in the same way a single division of a highway is open for traffic before the entire stretch is completed.

A project with many deliveries has plenty of instances where the result is evaluated and approved. Too many deliveries can disrupt the rhythm in the project, but they can also serve as much needed pressure for the project group. Additionally, it yields a possibility to test the project's result repeatedly. What is assessed is executed. Another positive aspect of delivering progressively is the opportunity to invoice little by little.

### Assessment

It is decided how to assess the result during the planning. The requirement specification acts as reference when passing approval of the result. The *handover* method varies depending on the project's characteristics. The most straightforward method is when the project manager assures the sponsor that the results achieved, and the sponsor accepts this without actually testing whether it is true or not. If the sponsor wants to make absolutely sure the goal is achieved, some kind of practical *acceptance test* must be carried out where performance and functionalities are compared and measured against the requirement specifications. It will facilitate the assessment of the final result if it is predetermined how to test, by having documented a test specification and different test scenarios.



Project name					
Version	Pre-study				
Project manager	Planning				
Customer					
	Approved	Date	Comments		
Product completed according to requirement specification	<input type="checkbox"/>				
Implementation completed	<input type="checkbox"/>				
Project acknowledged and delivered according to requirement specification	<input type="checkbox"/>				
Costs booked and accepted	<input type="checkbox"/>				
	Activities	Date			
Schedule for remaining activities					
	Location	Date			
Delivery					
Comments					
Handover approved by					
Appendix	<input type="checkbox"/> Requirement specification <input type="checkbox"/> Outstanding issue <input type="checkbox"/>				

Delivery acceptance protocol example.

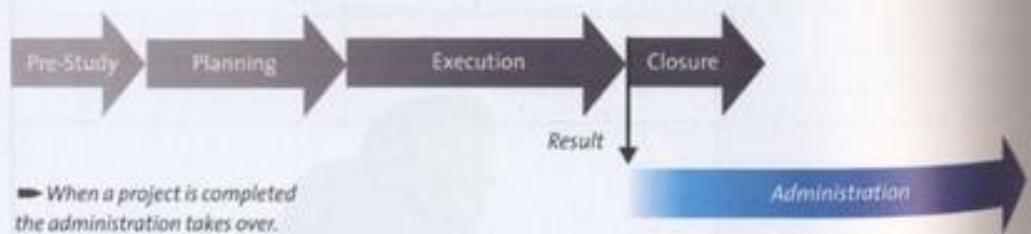
The sponsor's competence is not always sufficient when evaluating the final result. E.g., projects of a technical nature are usually assessed by experts within the field. It may also be a wise idea to use an independent surveyor, which is done e.g. in construction projects.

Prior to the handover it is recommended to produce a *document delivery*, or protocol, which the project manager and the sponsor will review together. Issues that are completed are taken off of the list, while those issues that do not fulfill the requirements or are not completed, are duly noted. The protocol should be dated and signed by both parties.

If anything needs to be resolved or carried out again it is advisable to do it straight away without delay. The project manager should request the approvers to respond promptly with their reports and comments.

Issues which have not been completed are collected in an action plan or in an *outstanding issues list* which is then reviewed by the sponsor.

The same goes for new issues that come up during the assessment. The assessment protocol may be the beginning of future projects.



## ADMINISTRATION

To uphold the result after a project is closed it is important to prepare for the *administration* of it. It could mean producing an administrative organization and a plan on how the administration is to be carried out.

It is a given part of the implementation to staff the administrative organization. The administration is not, however, a part of the project, but a part of the line organization. Often, the administrative organization is the recipient of the project and this is also where the first individuals in need of training are identified. These individuals will then be able to train other users throughout the organization.

### Administration Model

With the help of an administration model the work is managed and planned in activities that need to be performed to maintain the product.

An administration model consists of:

- o Processes
- o Roles and responsibilities
- o Documents and templates

Administration can be compared to the yearly reoccurring maintenance of the leisure boat. It needs to be fixed and launched every spring only to be taken to dry land again in the fall and prepared for winter storage. This has to be done every year, but it is often not enough to keep the boat shipshape. Every season something needs to be repaired or interesting new equipment has to be purchased.

### System Administration

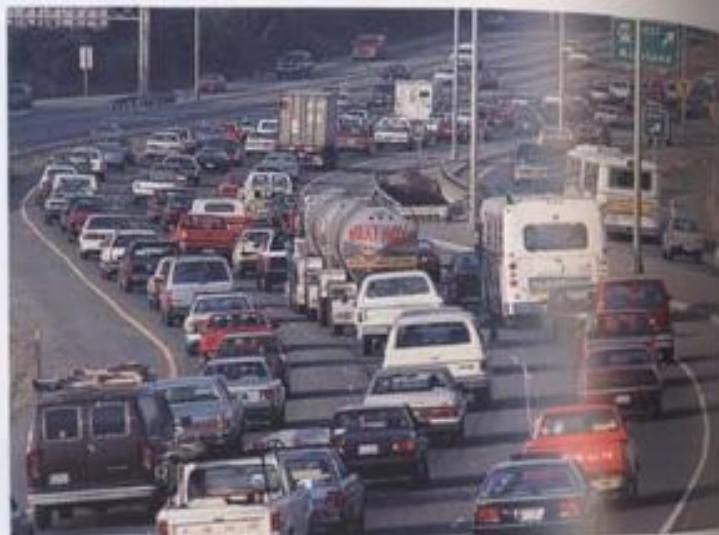
An administration model is usually a framework that describes how administrative work on a system should be carried out. System administration can be comprised of one or more processes, hardware, software, departments and individuals.

A general management model will increase the business value and the quality while costs are reduced. To facilitate the practical work templates and checklists are usually found as support. It is also important that interfaces, roles and responsibilities are defined in documented contracts or agreements. A system owner should be appointed before handover of a development project.

Just as a project needs to be planned, the administration needs to be planned. Processes and routines should be described and staffed, roles and responsibilities should be defined and finances and security should be established. This is to be documented in an administration plan for the result. The administration plan should be produced early on, before project closure.

## Project Lifecycle Budget

Many unpleasant surprises are avoided by considering the future need of maintenance when the project is accepted. E.g., a new highway will cost the taxpayers a lot in maintenance in the future.



It is unfortunate if the result cannot be utilized because all the money was spent when the project was running. It is not the project manager's task to make sure there is a budget for maintenance. That is the client's responsibility.

Planning

Execution

Closure

Establish group

Manage group

Terminate group

# project Termination

12

The project manager is responsible for the project's closing phase. A well executed closure will help create a positive picture of the project and overshadow any problems and conflicts that were handled during the execution phase. An image of the project will linger with the stakeholders for a long time after it has been terminated. That image may either help or hinder the project manager's future career.

## TERMINATION – THE TASK HAS BEEN COMPLETED

WHEN A PROJECT moves into the closing phase, usually most of the operative work has been completed. It is now by and large about evaluating performances and accomplishments, documenting experiences, lessons learned and the result, and officially terminating the project.

Some example of what to do during the closing phase.

- Handover the project's result (if this has not taken place during the execution phase).
- Compare performances and accomplishments to planned milestones and activities.
- Compile actual costs for utilized resources.
- Evaluate project methodologies and teamwork.
- Document lessons learned and distribute to other projects.

- Evaluate employees' performances and give feedback.
- Terminate the project group.
- Close the project's accounts.
- Document and file.

An unequivocal termination is important for all projects, even those that are abandoned prematurely. The sponsor needs to know that the project work has been completed and that he should not expect any more from the project; not in the shape of results or deliveries nor costs.

The project manager and the project group needs to know their assignment is completed and they are free to accept new missions or go back to their line organization and position.

The same goes for human resource owners; they also need to know that their staff is available to other projects or other assignments in the line organization.

## EVALUATING THE PROJECT

A project should be evaluated from every angle possible. The result as well as the process should be evaluated. This means actually analyzing all executed activities and measuring the result against the targeted goal.

To develop the organization's project proficiency and to facilitate future projects it is important to learn from previously executed projects.

Why did some activities run smoothly and according to plan, while others did not? The evaluation of the project should be done by way of a problem solving process and the entire project group should be involved. It is important to hear all viewpoints and reflections from stakeholders and participants.

A project manager should be aware of the fact that a project has repercussions on the surroundings long after he has moved on to other assignments. The result of the project lives on.

## Evaluate the Result

It is only possible to evaluate the actual result produced when terminating the project. It is possible to evaluate if the product and project goals are accomplished, but it is too early to see if the business impact goal has been met.

In order to be able to say that a project goal is fulfilled, the entire content of the goal setting has to have been accomplished. It is not sufficient to deliver a result which satisfies the product requirements in the requirement specification. The duration and resource goals must also be fulfilled.

Success for all disciplines, housing for the competitors, effective and functioning communication and trained officials is seldom missed when carrying out major events, like the Olympic Games. Success being ready for the opening ceremony usually missed, but what is on the other hand usually missed is the budget, and not by a small margin either. This is a consequence of the triple constraint parameter resources/costs being secondary to quality and time.

There are many ways to evaluate if a project is a success or not. Sometimes it is the project manager's ability to keep to the schedule which is the most important parameter, while in other cases it is the quality of the product which is the most important.

► "The Bird's Nest", The Olympic National Stadium under construction in Beijing, China 2008.



► A project where the parameter time is fulfilled on the account of increased costs and reduced quality. The reason could be an optimistic schedule and resource estimation, unplanned extra work during the execution phase or that the assignment could not be realized with the chosen solution.



Projects of strategic importance are seldom expected to generate positive financial returns in a short-term perspective, but lessons learned and competence development are expected to generate effects on a long-term basis.

During the termination phase all parameters are to be evaluated and be included in a comprehensive evaluation of the project.

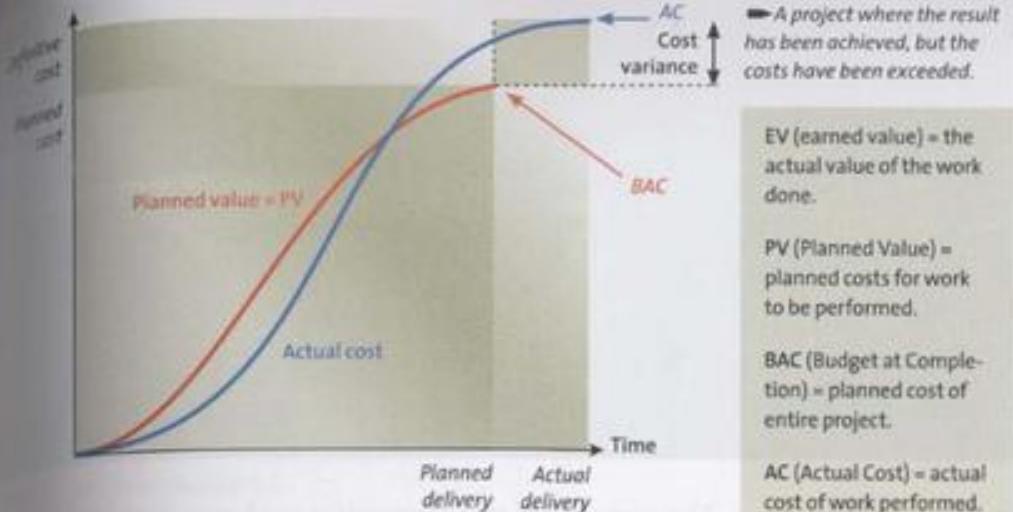
### Actual Costs

During the termination phase the project manager has to report and account for all the resources utilized in the project by producing an actual cost calculation. How much did the project cost? Did we stay on budget? Did the project meet the cost calculations in the requirement specification? If the project was delayed it is most likely that the budget has been exceeded.

When the project has been brought to a close all *project accounts* need to be closed, which means no further costs can be debited to the project. It is therefore imperative that the project manager makes sure all subcontractor invoices are booked and that the project group and other internal resources hand in their time sheets.

It will show during the termination phase if the prognosis made during the project's progression correlates to the ultimate actual cost calculation; the actual cost of the project.

The earned value should be equal to the planned value when the project is terminated ( $EV = PV = BAC$ ).



► A project where the result has been achieved, but the costs have been exceeded.

EV (earned value) = the actual value of the work done.

PV (Planned Value) = planned costs for work to be performed.

BAC (Budget at Completion) = planned cost of entire project.

AC (Actual Cost) = actual cost of work performed.

This applies if the project's scope has not changed. But, if the scope has been reduced due to lack of money before all requirements were fulfilled, the EV will be lower than the BAC.

$$\begin{aligned} \text{Cost variance} &= \text{Earned Value} - \text{Actual Cost} \\ &= EV - AC = BAC - AC \end{aligned}$$

### Time Consumption

Apart from evaluating the product quality and the project's financials it is important to have a look at the time consumption. Did the project keep to the schedule or did it take longer to execute?

That it is not considered out of the ordinary to exceed the schedule depends on the fact that it is very rare that a project finishes on time or earlier than scheduled. The building of the Oresund bridge between Denmark and Sweden was one of those rare projects that stayed on schedule and within budget.

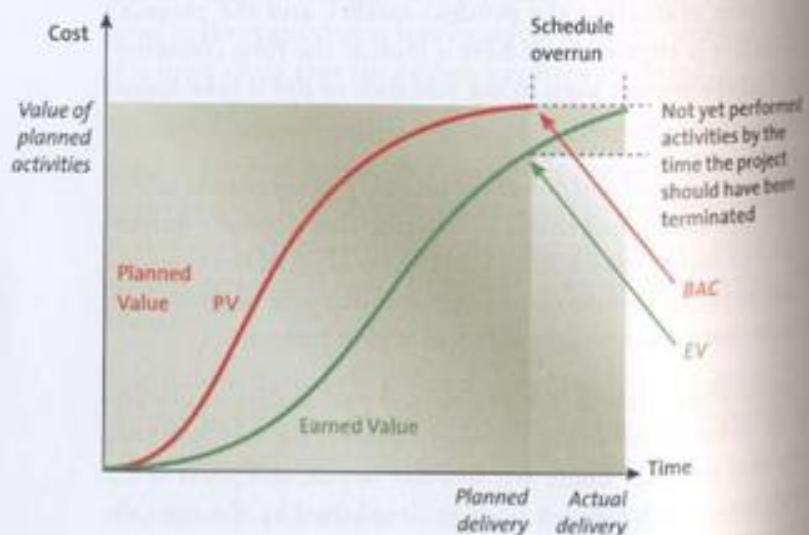
Projects, where time is the prioritized parameter, might end up in the unfortunate situation where everything has not been completed on time. There are, in other words, still parts of the assignment which has not been accomplished by the time the project goal should have been reached.



The Oresund Bridge – a project which succeeded in staying on schedule and on budget.

The sponsor has two alternatives to choose from in this case. Either close the project as previously planned and adjust the goal to correspond to what has been performed and achieved, or extend the project in order to execute the remaining activities. Schedule overrun to complete remaining tasks can be calculated using the earned value management methodology.

The duration estimation is based on productivity remaining the same during the finishing phase, as is has been throughout the project.



Actual delivery = Planned delivery + Schedule performance index =  
Planned delivery + EV / PV = Planned delivery + EV / BAC

## FINAL REPORT

Lessons learned and experiences are gathered in the *final report*. The final report is first and foremost an internal document which was meant to be made available to external stakeholders.

The final report should not be confused with the delivery acceptance which is an acknowledgment from the sponsor that delivery has been accepted.

In a projectized organization it is an obvious part of the routine to write a final report which is then distributed and archived for future reference in other projects.

The final report should cover all parts of the project plan. Performances and results are compared to plans and calculations.

Experiences from the teamwork in the project group and interpersonal relations with the stakeholders should be analyzed and suggestions on any improvements on the organizational structure, staffing and communication are duly noted and documented.

The evaluation should focus on what was satisfactory in the project and what could be done better the next time around. The final report should be archived and made available to those who might find value in the accumulated knowledge.

A smaller project might just produce a protocol that specifies what was concluded during the termination phase, as an alternative to a major final report.

## Final Report

1. Background, objective and business impact goal
  2. Project goal and limitations
  3. Sponsor (client), project manager
  4. Evaluation of the goal
    - a) Project goal
    - b) Actual cost compared to planned value
    - c) Actual compared to planned delivery schedule
  5. Analysis of project lapse
    - a) Milestones and tollgates
    - b) Schedule
      - i. Time estimations
      - ii. Dependencies between activities
      - iii. Critical path
    - c) Resources
      - i. Resource management plan
      - ii. Procurement, requirements and agreements
      - iii. Was the right quality delivered on time and to the right price
    - d) Risk management
      - i) Risk events that happened and how they were handled
      - ii) Unplanned risk events
    - e) Verifying the result
      - i. Planning
      - ii. Execution
      - iii. Implementation
    - f) Project reviews
      - i. Planning
      - ii. Execution
    - g) Communication and routines
      - i. Communication plan
      - ii. Administrative routines
      - iii. Status reporting
      - iv. Protocols
      - v. Deviations and change administration
  6. Evaluation of the project organization
    - a) Structure
    - b) Project group
      - i. Staffing
      - ii. Collaboration
    - iii. Training and competence development
    - iv. Liquidation
  - c) Steering committee
    - i. Staffing
    - ii. Collaboration
  - d) Reference group
    - i. Staffing
    - ii. Collaboration
  - e) Relations to the line organization
  - f) Location
7. Quality audit
  - a) The result
    - i. Product requirements in the requirement specification
    - ii. The client's experience
  - b) The project
    - i. Project requirements in the requirement specification
    - ii. Evaluation of project methodology
    - iii. Evaluation of strategy
8. Steering committee's comments
9. Reference group's comments
10. Recommendations
11. References

Project name			
Client / sponsor			
Project manager			
Project verified according to project plan.	Completed	Date	Comments
Result verified according to requirement specification.	<input type="checkbox"/>		
Project group terminated.	<input type="checkbox"/>		
Units booked and acknowledged.	<input type="checkbox"/>		
	Activities		Date
Remaining activities transferred to	<input type="checkbox"/> New project <input type="checkbox"/> Administration organization		
Follow-up of business impact goal.	Venue		Date
Comments and reason, if project was abandoned prematurely.			
Project manager has been granted discharge	<input type="checkbox"/> Yes <input type="checkbox"/> Yes, when above mentioned activities are executed or transferred. <input type="checkbox"/> No		
Approved by			Date
Appendix	<input type="checkbox"/> Final report <input type="checkbox"/> Actual costs <input type="checkbox"/> Follow-up plan <input type="checkbox"/> Administration plan <input type="checkbox"/> Warrantee obligations		

► What a final report might contain.

► Final report – protocol when terminating a project.

## HANDLING THE TERMINATION

*With the termination of the project, the project manager hands over the result to the sponsor who will attend to and make sure the result is incorporated into the organization to facilitate the wanted effect.*

It might be challenging to maintain the team's focus on the project during the entire termination phase. As the finishing line moves closer, the thoughts in the project manager as well as the group, tend to concentrate on what will happen when the project has actually been terminated.

When having participated in a project and contributed with knowledge and time it is valuable for the self-esteem and personal development to see the fruit of one's work. This also goes for the team members who only took part of the project during a short time. Did their contribution add value to the project and what happened during the remaining time of the project run?

It is just as important during the final phase to give feedback to project members, as it has been throughout the entire process. Projects should be terminated with a proper *kick-out* for all participants, even those who have only been involved for a short time in the project.

#### Analyze Cooperation Within the Project Group

It is important to set aside time to reflect and contemplate, in order to learn from the work done. It can also be of value to analyze the decision-making process, and to have a closer look at how the cooperation within the group developed.

- "The power of the pen"  
– the person who takes the initiative by the board has a great opportunity to dominate the decision-making process.



*- questions – to be used to optimize meetings and gatherings*

- Work method:  
What kind of work method was used by the group?  
Round-table discussion  
Chairman or "supervisor"  
"Innive"  
None specific
  - How was this decided upon/who decided upon this?

- = Effectiveness
    - what was effective during the project?
    - what was ineffective during the project.

- Participation
    - Where there any/some whose contributions where more important or beneficial than others?
    - Where there any/some whose contributions where less important or beneficial than others? Why?

- How were the decisions taken?
    - Through majority vote
    - Compromising (nobody is really satisfied)
    - Technical solution (average, etc)
    - Conciliation solution
    - Other method

- 3 Conclusions**  
*What might be done better the next time around?  
What did we learn from this?*

#### Terminate the Project Group

During the termination phase the project manager needs to wrap up the project group and terminate his involvement in the project. This can be handled in many ways, and can sometimes be seen as a negative experience by some in the project group.

If the project manager has prepared the group thoroughly in due time on the termination and how it will happen, this usually passes without any discontent.



The responsibility for the internal resources should go back to the resource owners and any agreement with external resources should be terminated.

It is not unusual that a certain emptiness is experienced when demanding work has been performed. Who am I without my project and my project manager role? You might feel you are not needed or sought after anymore. The routine work seems insignificant since it does not yield the same personal affirmation as the project work did. It might even be difficult to work up enthusiasm for something entirely new.

This kind of depression is common and is called "post production depression" or "post project feelings". The joy and pride over a successful project can be followed by a void and a perceived sense of loss. If this reaction is recognized and understood for what it is, it is much easier to deal with. It is important to have definite closure, to be able to move on. A proper closure will release energy and is an important step towards the next assignment for the project manager.

### Unknown Shortcomings

The fact that the execution phase has been carried out means the project no longer exists, but the result lives on. If everything is satisfactory and the result matches the sponsor's expectations, the project manager can add the project to her accomplishments and concentrate on the next assignment.

But, unknown shortcomings in the result, or parts of the project that have been overlooked, might suddenly turn up. The project might face warranty obligations because of this. Sloppy performances will have to be carried out again and certain parts have to be modified to satisfy users. Consequentially, the project's total costs increase, which leads to an obvious decrease in profit intake, or even to a complete financial loss.

When accepting a project of major financial scope it is important to sign a warranty insurance covering any demands for compensation for defects and shortcomings and consequential deficiencies caused by the project.

I guarantee inspection's purpose is to reveal defects and other shortcoming that went unnoticed and missed during the final inspection in connection with the handover. Some problems do not arise until the product is being used and exposed to wear and tear.

There are problems in most industries, but quality deficiencies in the construction business are often more obvious and unmistakably noticeable. This has become quite apparent in the last decade or so where scandal upon scandal within the construction business has surfaced. E.g. buildings attacked by fungus, cracks in bridges or troublesome subway signaling systems.

Many of the problems in these projects can most likely be related to too tight budgets and rigid schedules. The sponsor always determines the level of quality by providing sufficient finances and through his tolerance level. Fast and cheap solutions seldom lead to something good. Quality has to cost.

*The bitterness of poor quality remains long after low pricing is forgotten.*

*Exit criteria: Requirements and conditions that control whether a project gets to continue or be prematurely terminated.*

## PREMATURE PROJECT TERMINATION

There are many reasons why a project should be terminated prematurely. It could be that the chosen solution cannot be realized or that other more prioritized projects need the resources. It could also be due to a rival product being launched on the market simultaneously as your project is being executed.

Prematurely abandoning a project could also be due to a number of changes made in the company senior management and ownership, or new strategic business goals have been put in place. Even political decisions and law amendments can affect the project, as well as the fast developments, first and foremost within the information technology.

It is a fact that too many projects are started and too few are abandoned prematurely. If company managements and project sponsors were more thorough in their reviews and evaluation of proceeding projects, they would probably realize that several of them will never add anything to the organization's overall goals.

There seems to be a certain prestige in not terminating projects prematurely. The more a project has already cost, the more impossible it seems to abandon it prematurely. Money lost cannot be recovered by continuing a doomed project. Sponsors need to be more observant and have more backbone when it comes to abandoning projects that do not live up to standards.

The project manager and the team will most likely be disappointed and will try to defend their project, but they will understand if properly informed of the reason why the decision was taken.

The resources saved by terminating unprofitable projects or putting an end to projects heading in the wrong direction can be utilized in more profitable projects.

### Griefance

It is often experienced as a loss and a personal failure when losing a project you have worked on. Most people grieve and this may take some time. It is not until you have successfully let go of the old project that you are ready for a new one.

It is important to know and understand why a project was prematurely terminated. Before the project group is dispersed the project manager should arrange a "funeral feast" where everybody gets a chance to vent their feelings and put the project behind them for good. Project managers who take over employees from such abandoned projects should keep in mind that these people need time to build up new enthusiasm and motivation before they can be expected to be productive. They are in the inclusion phase of the FIRO theory, and therefore have an urgent need for information about everything and anything that concerns them in the new project.

### Useful Experiences

To prematurely terminate a project is also a valuable experience. It is obvious that a final report should be written for a prematurely terminated project, just as well as you would for one which ran its course.



## Follow Up the Benefit Impact

Measuring the benefit impact of a project is often neglected and the opportunity to learn whether the right project was executed or not, will be missed. Was the project profitable and were the organization's resources utilized to the optimum?

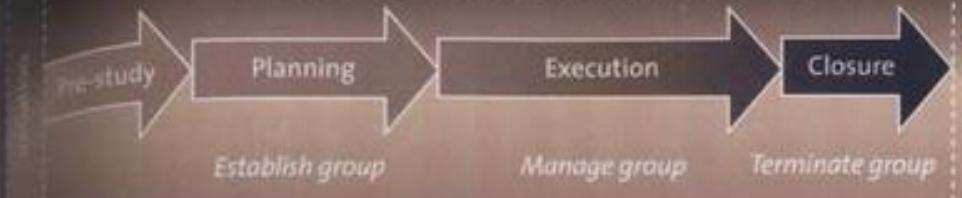
It should be a matter of course to follow up and evaluate the benefit impact, just like it should be obvious to only initiate projects that are in line with the organization's strategies and focus on a benefit that is actually of value to the organization.

The benefit impact a project is meant to bring about does not usually appear before some time after project closure. The result of the project has to be applied before any impact can be measured.

### FOLLOW UP THE RESULT

Who takes responsibility for a project achieving the right result? According to a study only five percent of IT procurements are followed up and financially evaluated. This is a low, but not unique figure, unfortunately.

But there are exceptions. A European insurance company has developed a method to evaluate projects according to how they contribute to more satisfied customers, financial benefits, employee significance or process and innovative benefits. These evaluation principles are an important factor today in the insur-



If the business impact goal has not been achieved, the reason should be analyzed by asking the following questions:

- Was the wrong project executed?
- Was the project pertinent, but unforeseen events made it impossible to achieve the business impact?
- Was the project pertinent, but should a so called acceptance project have been carried out in parallel to inform users and to establish the project?

It is important to determine the reasons why the expected benefit did not materialize to be able to correct what has happened and through this become better at initializing the most pertinent projects.

The responsibility for achieving the business impact lies with the sponsor when the project has been closed. The benefit impact should be measured several times. If it is made a routine to follow-up the effect on a regular basis, e.g. every six months or once a year, it will be quite apparent if the benefit effect is enduring or just transitory.

## NEW PROJECTS – AN EFFECT!

To follow-up and measure the impact is often the beginning of new projects. It could be taking the next step on a seemingly successful road. The evaluation of a pilot will hopefully show that it is time to implement the project in a wider perspective. Revising what did not turn out very well in the first project, or executing yet another project to achieve the full benefit impact is another action point.

This is an opportunity for the ex-project manager to become the project manager for yet a project. A project manager should therefore always make sure to participate in the follow-up of the project he or she led.

# Business Change Management 14

Companies and organizations launching organizational business change management projects do so from an experienced situation and from pre-determined goals. Changes might be initiated and in response to circumstances within or outside the company. In the latter case it might be that the company wants to evolve by focusing on a new market segment, new products and implementing new technology to become more efficient.

Work methods and strategies are usually affected when a business goes through a transformation and new goals are to be achieved. It is necessary to do a situational analysis of the experienced situation and visualize the goal to succeed. This is the starting point when trying to correlate the current situation to the future objectives the company or organization wants to achieve.

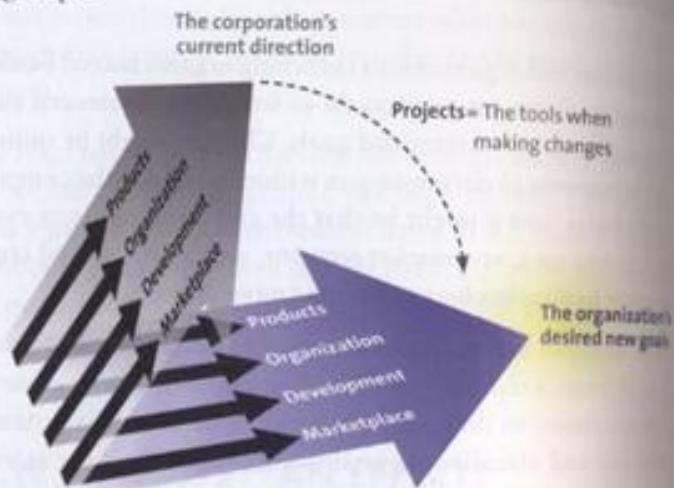
## A NEED FOR CHANGE

AS PREVIOUSLY mentioned it is important, in connection with the implementation phase in a project, to reconcile differences and gain support within the organization. By informing and communicating, the purpose of the *business change management* project will gain support from the very onset.

Why is the change needed and what is the expected outcome of the change? How will the change management project be executed and how will the project be reviewed? Produce a proper

implementation plan built on a WBS that mirrors the project's deliveries. Since we are dealing with people, it usually takes a while before the change is apparent and the effect can be measured. The result of the change management project is of no value until it is possible to measure the actual change.

An assessment and a review of the old strategies and work methods must be carried out during a change to match the new organization. It could be anything from what the product portfolio contains, how to get organized, how to develop products and new target groups and how to survey and work the groups.



Recruiting, competence development, incentives and IT support will also be affected by a change.



► Swedish V&S Group, one of the world's leading spirits companies producing Absolut Vodka, the fourth largest spirits brand in the world, is almost certainly facing major changes since the Swedish government sold the company to the French company Pernod Ricard. To become part of one of the largest privately owned spirits companies will not pass unnoticed in what was formerly a government owned company.

## A3 REPORT

Communication is one of the most important processes in change management projects. A3 reports are used in Toyota as an integral part of problem solving and decision making. Toyota presents these as stories.

### What is an A3 report?

An A3 one-page reporting format, named for the international paper size. Originally it was the largest size that could fit in a fax machine; 11 by 17 inches. It contains critical information about an issue, such as description, cost, timing, data, planned solution and planned resolution.

### What are the advantages with A3?

One of the fundamentals in The Toyota Way is to eliminate waste in all activities including the presentation of information and decision-making based on the information. When properly presented, the information can be read or explained in five minutes or less, so everyone understands and decisions can rapidly be made.

### What information should be on the A3?

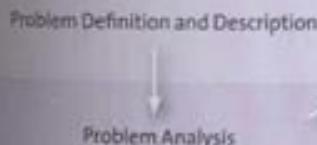
Only the most essential information to be shared with others for careful evaluation of the process intended to be used, and for achieving consensus should be in the A3.

- Use graphic form to present data.
- If you must use words, use 3 - 4 bullet points instead of sentences.
- Use arrows to show the flow of information.
- Avoid acronyms and technical terminology.

### A3 Report Title and Description

### Problem Definition and Description

### Problem Analysis



### Implementation Plan

### Results

### Future Steps



## CHANGE MANAGEMENT LEADER

Since it is unusual that the CEO and/or the senior management run the change management process, it is necessary to appoint a so called change management leader. The *change management leader's* role is to act as a senior project manager whose assignment is to keep all the details together, in order to achieve the overriding goals.

It cannot be said often enough how important it is for the change management leader to have the organization's unmitigated support, officially as well as tangibly. The chance of success is minimal without this support.

### Being a Leader and a Manager

Being a change management leader has much in common with being a line organization manager. The following list contains issues that a manager of a change management project should consider:

- Do not do all the work yourself.
- Do not be in a hurry. Do not force changes before you have the employees' support.
- Do not become "buddies" with the staff, but strive for friendly inter-personal relations. Be aware of your role. You are the manager and therefore the sponsor's and the management's representative.
- Do not present all the solutions yourself, but learn to delegate. The manager's role is to execute through others. Encourage enthusiasm and demand results.

— The Swedish Defense is an organization that has gone through major changes. The new Swedish Homeland Defense demands an entire new organization and new ways of educating the recruits than the traditional defense organization did, built around units and regiments.

## SOCIAL CAPITAL

Effective change management benefits significantly if everybody cooperates. But if an individual does not trust the colleagues to cooperate, he will not cooperate either since this is then believed to be irrational. An effective collaboration can only exist if you have faith and believe the others choose to cooperate too. Without this faith, "the social trap" will slam shut and we end up in a situation where everybody is worse off. It takes time to build trust and confidence, and it can easily be knocked down if promises or deals are broken.

According to Bo Rothstein, Professor in Political Science, social capital is the product of the number of contacts – a person's network – and the level of confidence you have in these contacts. Trying to maximize your own profit at the expense of others will inevitably point back at yourself. If you are generous, on the other hand, you will get more in return than what you have invested yourself. Our entire existence is built on trust and the will to share.



## Success Factors – Six Steps

The change management leader has to have the six steps of the change management process in mind to succeed:



► Success factors in the change management process.

SOURCE: PROSENSIT MANAGEMENT CONSULTING

### 1 Creating a change management environment.

A positive change management environment is achieved by focusing on facts which clearly point to the change management need. This can be achieved through a situational analysis based on an experienced need or a pre-determined goal.

### 2 Stakeholders management

Correct management of the stakeholders, both during execution and after the project, is one of the most important components needed to secure a successful change management project. The target groups are defined and the messages are articulated to explicitly satisfy the individual stakeholders in the communication plan.

### 3 Establishing a vision

Define the vision – the added value of the change – to get the stakeholders on board throughout the entire process, and even after the project is closed.

### 4 Linking the changes

The change management project should be seen in the right context to motivate the project team. This enables the steering committee and stakeholders to give the project the support necessary.

Major attention should be given to documenting and proving how the change management project is connected to the line organization. This is appropriately done by relating the project goals to the organization's overall strategic goals.

### 5 Measuring

The effect of the change management project has to be measurable. This is why it is important to formulate S.M.A.R.T.-goals in the project charter. These are followed up by pre-determined milestones and tollgates during the entire project.

### 6 Creating lasting change

The change the project was meant to achieve is not a reality yet because the change management project in itself is executed. It takes time before a change is disseminated throughout the organization. It is also essential that "ambassadors" are appointed; contact persons with knowledge on and an interest in the project they have participated in. These individuals should support the organization by applying the change during a foreseeable future.

These "ambassadors" should also follow up, measure and report if the change has created the wanted effect.



## Open Space Technology

Open Space Technology is an effective method to carry out workshops where changes are to be discussed and it is vital to hear everybody's thoughts. Technology, in this case actually means a tool, process or a method. It involves

1. Uniting on the workshop's direction – this is usually pre-determined.
2. Crafting issues to discuss. These are then posted on easel pads in the conference room. This should preferably be done before the workshop starts.
3. Letting the participants chose an issue based on interest by physically placing themselves next to the posted issues.
4. Forming groups around the most popular issues and remove the issues few or none have chosen.
5. Starting discussions in the groups around a couple of key questions which are related to the chosen issue.
6. Presenting the results to everybody group by group.
7. Document all and attach to the notes and comments.

## EVALUATING THE SUCCESS RATE

Most companies and organizations handle change in more or less the same way. The American management consulting firm Boston Consulting Group, BGC, has analyzed close to one thousand companies and identified a distinct connection between the outcome of change management projects, regardless of being a success or a failure.

The BGC studied four well-defined factors. The project's duration, the project group's individual abilities, the management's and the staff's commitment level and how much extra work the staff is expected to do. By analyzing these four factors which are called *DICE* (*Duration, Integrity, Commitment and Effort*) it is possible to determine if a change management project will succeed or not.

### Duration

It is not uncommon to worry about the duration of the transformation. It is easy to assume that the longer the change management process is going on, the bigger the risk of failure. But, contrary to this assumption, studies have shown that it is the

frequency of the reviews during the process which is more critical than the project's actual duration.

To guarantee that the project management stays in control of the project's progression, it is usually necessary with weekly or monthly reviews. There is a greater risk that the change initiative will fail when reviews take place too infrequently, because of the complexity in most change management projects. Scheduling and regularly measuring milestones is one sure method of keeping track of the transformation in the organization.

### Integrity

Integrity means how much the company can rely on the skills and motivation of the project manager and employees to execute the change successfully. Companies that have successfully transformed, have seen that the employees are also willing to spend more energy and time completing the routine operational tasks. They will almost certainly bring this behavior into the project. It is equally important that the project groups are cohesive and well-led, since they are expected to perform various types of activities.

### Commitment

It also makes a big difference if the project team members can devote all their time on the transformation, or if they have to execute the project concurrently with their routine operational tasks. In the latter case it is vital to schedule the time to be spent working on the project, and the management must show support for the endeavors. The management must also make sure to communicate often and unequivocally. Messages are often misinterpreted which might lead to unfortunate project prioritizations. This in turn, might lead to conflicts and a disjointed team. Senior management must continuously be prepared to take the project and clarify the purpose and support for it.

### Effort

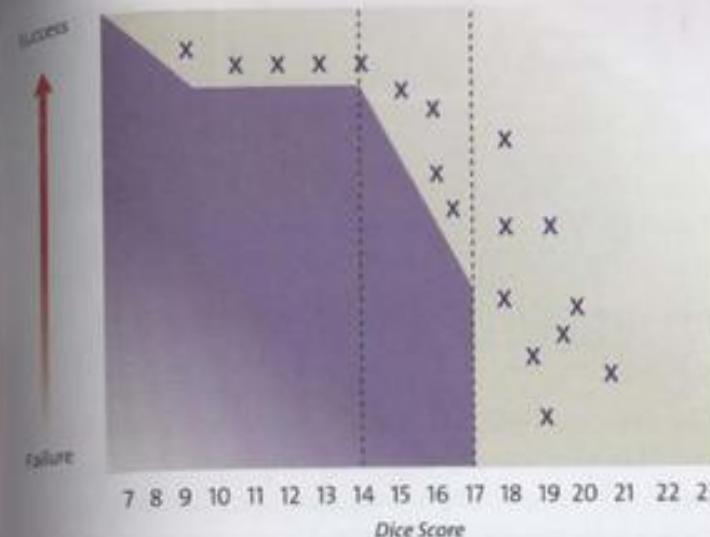
When owners or the senior management group start a change management process, they rarely ever consider that the employees already have busy days doing their ordinary operational tasks.

■ Change management value:  
The success of a planned change  
can be calculated by using the  
four DiCE factors.

It is not recommended that the work load of any employee increase more than 10 percent. Problems will without doubt arise if this limit is exceeded. The project team members will be overworked, stressed and forced to compromise between the change project and the routine operational work. Morale will sink and conflicts crop up. It is always the senior management's responsibility to recruit change management leaders and to mitigate the process for them.

Factor	Question	Assessment
Duration (D)	How often is the project reviewed?	1 Every two months or less. 2 Between two to four months. 3 Between three to four months. 4 Eight months or more.
Integrity performance (I)	Is the change management leader capable? Is the project team qualified and motivated? Is there sufficient time for the initiative?	1 If the answer is yes on all questions. 2 or 3 if the answers are in between. 4 If the answer is NO on all questions.
Management commitment (C1)	Does senior management often communicate the purpose of the change? Is the message convincing? Is the message consistent? Has enough resources been devoted?	1 If senior management has communicated in words and action the necessity of the change. 2 or 3 if the management appears neutral to the change. 4 If the management seems reluctant to support the change.
Local-level commitment (C2)	Does the staff most affected by the change understand the reason for the change initiative, and do they believe it is necessary? Are they enthusiastic and supportive of the change initiative?	1 If the employees are enthusiastic. 2 If the employees are willing. 3 or 4 If the employees strongly oppose the change.
Effort (E)	How much must the employees increase their workload? Does the incremental effort come on top of an already tough work situation? Have individuals already objected to the increased demands?	1 If it demands less than 10 percent increase. 2 If it will be 10 to 20 percent. 3 If it will be 20 to 40 percent. 4 If the workload increases by more than 40 percent.
DICE Score = D + 2I + 2C1 + C2 + E	Between 7 and 14 – the project will most likely be a success (sometimes called the "win" zone). Between 14 and 17 – uncertain if the project will succeed (sometimes called the "worry" zone). Above 17 – extreme risk for failure (sometimes called the "woe" zone).	

SOURCE: BOSTON CONSULTING GROUP, BUSINESS HARVARD REVIEW, 2009



■ The figure clearly shows the connection between the calculated DiCE scores and if the project was a success or a failure, according to an analysis by the Boston Consulting Group.

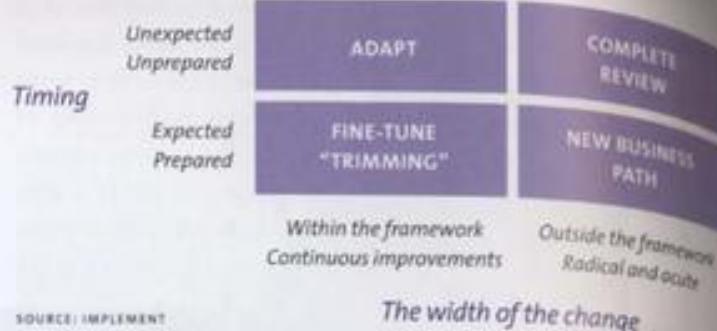
## MOBILIZATION

75 percent of all confirmed and decided upon strategies are never implemented. This is often due to a lack of implementation strength in the organization. It requires courage not to do something the way it has always been done.

Value, attitudes and behaviors must be influenced. When the senior management realizes the full extent of their strategies and what needs to be done, they may just hesitate and not go through with the changes at all. They might even realize they themselves are "expendable" since they might not fit in the new organization.

To succeed in implementing transformations, the organization needs to be mobilized, especially when the framework of the organization and middle managers are part of the problem. This can be done through a mobilization project which sole purpose is to create understanding and acceptance.

It is not sufficient to create an acceptable goal perception; the goal must also be broken down on and concretized on a departmental and individual level. This exertion is necessary to generate sufficient drive when executing the project. Do not forget to support and professionally stimulate the managers; before and during the entire change management process.



The scope and timing of a necessary change decides how major and radical it actually has to be. An expected change is not necessarily easier to implement, than one which has been forced upon you by unexpected factors.

Expected and prepared changes in line with the organization's goals are often manageable, but not necessarily free from problems. This is even more so when changes occur so often that the organization never has time to stabilize. In a situation where an expected change lies outside of the existing framework, we talk about choosing new business paths.

An acute situation requires immediate attention. It may be sufficient if the change is minor, while a major change can demand a total review of the organization's direction and work methods.

### The Burning Platform

Pale Male is an example from the animal kingdom of the change management strategy "the burning platform", where it is made impossible to choose the alternative staying with the old.

It is sometimes easy to be led to believe that nothing has to be done when nobody experiences a crisis. It is, on the other hand, always the senior management's responsibility to "awaken" the staff and make them realize the importance of a necessary change, sometimes long before a crisis has actually occurred.

### EXAMPLE: "PALE MALE"

A story about a red-tailed hawk and his mate provides us with a good example of how to press a necessary change forward.



A couple of years ago a pair of hawks created a major stir in New York City. It is very unusual for hawks to live and mate in a big city, so because of this a large gathering of people followed the pair's song. The interest was huge when the male, called Pale Male because of his light-colored head, was going to get the fledged offspring to leave the safety of the nest. It was situated on a small ledge on a building on 5th Avenue across from the park. It was important to succeed since they could not stay in the nest because of their rapid growth.

There was a considerable distance to the nearest tree. The hawks stopped feeding the chicks and Pale Male tempted them by flying past the nest with food in his beak, but still out of reach. The hungry chicks were torn between the known safety in the nest and the food out there in the dangerous unknown.

It took several days before one of the chicks mustered up the courage to throw itself off the ledge into the unknown. After a couple of uncertain strokes, the chick was off. Shortly thereafter all the chicks were together in the park. They had gathered up the courage and coped with the necessary change.

To be nice and pleasant and not speak about what has to be done so as to protect the staff against the upcoming unpleasanties, will often strike back at the management with force. sooner or later it will be apparent to the staff and they will feel indignant and left out of the loop. Consequentially, they lose confidence for the management and the change will be even harder to implement.

## SECURING THE RESULT

To ensure a successful transformation it is necessary to analyze how it will affect prevailing work methods and norms in the organization. This should already have been analyzed in the pre-study. Changes that are perceived threatening will meet resistance, while changes perceived advantageous to the employees will be supported automatically. It is not until the implementation phase is started the project becomes tangible to the involved individuals. The more an unwanted change is forced upon people, the more resistance it will meet.

### The Unwritten Rules

Every organization has unwritten rules; a part of the company culture that influence on employees daily work. These rules are based on and reflect what the employees consider desirable and advantageous to do, and thus effect the organization's direction and efficiency. Unwritten rules need to be understood before they can be changed.

The book "The Unwritten Rules of the Game" by Peter Son Morgan describes a method to identify these rules by observing which motivators, enablers and triggers influence the employees.

Projects must harmonize with the unwritten rules and be in keeping with what the employees consider motivated and meaningful to have a beneficial effect at all.

It is imperative to understand what motivates the employees and use this knowledge constructively to be able to work on the preparations and on gaining approval in the organization. The change management project might be in a precarious situation without this insight. The implementation might fail and the expected value of the project will not reach its full potential.

It is essential to interpret signs and follow clues when trying to understand how to get the individuals in the organization mobilized. Social codes and other conventional influences sometimes make us say one thing, while we are actually of a completely other opinion.

### Motivators



► Motivation triangle.

**Motivators** – What is considered important by the employees. It may be the senior management's behavior, individual salary and work terms, career opportunities and status enhancing possibilities.

**Enablers** – Who determines rewards or reprimands. This is ultimately determined by work descriptions, organizational charts, reporting channels and approval and authorization rights.

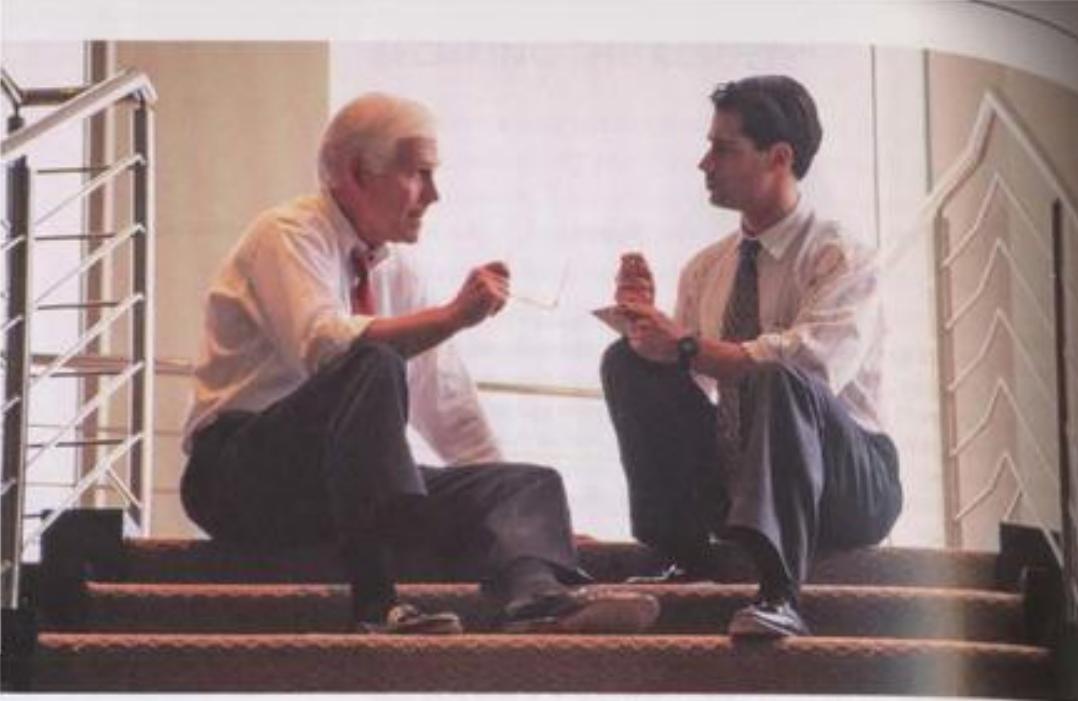
**Triggers** – What to do to be rewarded. It might be performance, achieved goals and milestones, positive evaluations or through working strategically.

The book on change management leaders and effect realization by Nils Lindell describes how it is possible, through conversations, to chart the underlying motivational force in employees. To change people is difficult or even impossible if they are not motivated themselves. Try to encourage what is considered rewarding to do for that individual instead and how to be rewarded, so called triggers and enablers.

### Gaining Approval For Future Changes

Gaining approval is a long-term process that should preferably be initiated simultaneously or before the execution phase is kicked off. It is then possible to spot reflections and suggestions from the very beginning.

The main objective is to create an atmosphere filled with positive anticipation in the organization. But, this positive anticipation cannot be too big, since the change management project risks not measuring up to the expectations at all. This is why it is important to continuously correlate the project's achieved results and the expectations of the value of the project. If necessary, adjust the expected benefit effects.



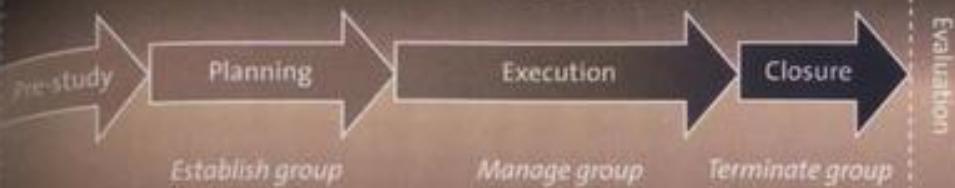
► If you want to change a behavior in an individual you need to change the enablers and triggers. The point is to get the person to change voluntarily, instead of coercing him.

*Think drop* from Baseline Management is a method to secure and gain support for ideas in an organization prior to a change management project. The method advocates planting an idea at the bottom of the organization to see if it will take root and have enough carrying capacity to take itself all the way to the top.

An idea which is strong enough to survive this will most likely also be viable as a project. During its way through all the levels in the organization the original idea has been refined and developed into something many people accept. Through this, the idea has been established in the organization and many will consider it their idea.

Source: [www.baselinemanagement.com](http://www.baselinemanagement.com)  
Project Management Institute, Project Management Body of Knowledge, PMBOK, PMI, and PMP are registered trademarks of the Project Management Institute, Inc.

## PROJECT MANAGEMENT



15

## Project Maturity

The responsibility for competence development lies with the management, but it always takes place on an individual level. Knowledge management is one way of evaluating the individual as well as the group and placing reasonable demands on them. For this to succeed and the wanted benefit to occur, the process must be monitored and controlled, so that the individual as well as the organizational goals are reached. Feedback should be a part of this process.

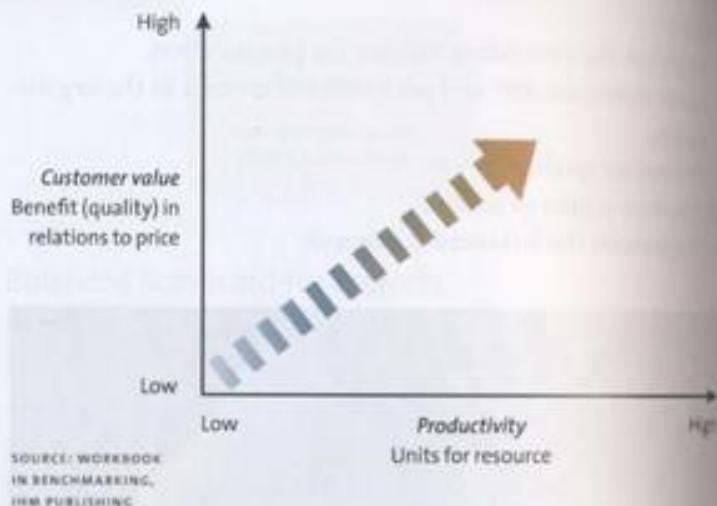
To keep or strengthen competitiveness in the business world, project maturity within organizations need to be increased. This is a long-term process which takes time but is a profitable and overall beneficial investment. Project processes can be developed through goal setting. By using balanced scorecards it is possible to align the organization's long-term goals with the short-term project goals and individual competence development goals.

## COLLECTIVE MEMORY

THERE ARE many reasons why it is important to have many age groups represented in a company or an organization. One is the mentor/mentee relationship, also called master/apprentice. A certain balance between the age groups is necessary for the collective experience within every organization and occupational group to be passed on from generation to gene-

## LEARN FROM OTHERS

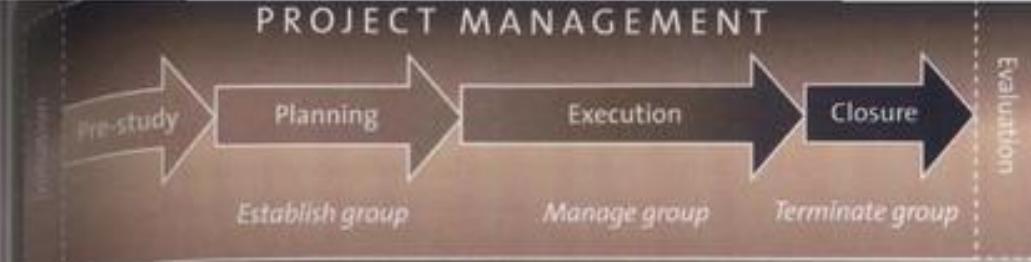
One way of developing and improving the project organization is by learning from own and others' positive experiences, as well as mistakes. This experience is invaluable knowledge which can be used when working in projects. Best practice benchmarking is an excellent method to improve the corporation. By comparing the own company to another in the same line of business, which is more successful in one regard or another, it is possible to identify improvement possibilities.



### Standard actions in a benchmarking process:

1. Decide what should be benchmarked.
2. Identify benchmarking partners.
3. Gather information.
4. Analyze.
5. Execute.

## PROJECT MANAGEMENT



## 16 Program and Portfolio

It is customary for most senior managements these days to engage in how projects are managed in the organization. The knowledge of the importance of, and the competence on, project management is moving up in the organization. Project management on a senior management level is usually called portfolio management.

Projectized business development is increasing, driven by the so called information economy which is built on more knowledge enhanced products, while at the same time repetitive tasks are reduced. To be successful and maintain competitive strength in the marketplace it is necessary to be able to put a stop to projects or avoid initiating projects of little value all together, and instead initiate projects of more value.

## ENTERPRISE PROJECT MANAGEMENT

A PROJECT is an effective tool when converting strategies into concrete action. However, processes are required to be in place to be able to choose which projects to initiate and how to allocate resources. It was important during the industrialization to decide which products were the most profitable and best suited to be produced, with consideration to the limitations found in the production equipment's so called bottlenecks. Today's bottlenecks are more dynamic, since it is increasingly difficult to determine the result of a human being's work, compared to how

many units a piece of machinery can produce in one hour. To be successful today, a systematic approach is needed to execute successful projects, not just one individual project, but every project. It does not matter how large or small an organization is, if it is a private business or a government organization, the most important question to ask is: "How do I make sure my projects deliver profitable results – every time?"

It has never been acceptable to be unsuccessful with a project. Still, it happens often. Why is this and what can be done to prevent it? There are no simple solutions. You have to start with the basics and know what you want. A strong focus on quality control has contributed to a greater understanding of the advantages of describing the corporation in processes and by organizing it in teams. However, when it comes to introducing changes and executing projects we rely on our "heroes" – the knowledge and abilities in individuals. It is difficult to determine if this is due to the human being's reluctance to answer to processes and routines, or the need to be creative, but the outcome is the same. Focus will center on the individual or on a departmental level, instead of what is best for the organization as a whole, and this leads to sub optimization.

To be able to take comprehensive action on the organization's ability to turn its strategy into action, methods and tools are needed to manage the organization's projects and resources. Many have understood this and invest large sums in organizational management systems. But what do these systems measure? Enterprise Resource Planning, ERP, systems primarily describe and measure flows and transactions. Customer Relationship Management, CRM, systems primarily describe and measure client contacts. Finally, financial management systems primarily measure money. Do none of these systems give the senior management the information needed to select and initiate projects?

The complexities in modern organizations can easily confuse us. To succeed it is imperative to create the competence needed to handle changes. But how are the organization's abilities to be improved and further developed? A holistic view is needed to succeed. This entails studying the organization

(Enterprise) together with the critical change management tools (projects) and the processes to control and manage the entirety (management). These are the building blocks of the *Enterprise Project Management, EPM*.

EPM is based on the following essential elements:

- ① *Project management* – management and organization of individual projects.
- ② *Portfolio management* – selection and prioritization between different projects.
- ③ *Resource management* – project staffing and competence development.
- ④ *Communication and cooperation* – information exchange and work flows/processes.



EPM includes strategic planning, process development as well as project methodologies and IT solutions for planning, follow-up and management. EPM's strength lies in the fact that it focuses on the entirety where every part is optimized to yield the maximum benefit for the organization. The challenge lies in bridging the gap between strategies and supporting technology, where the needs of the organization always come first.

"You can't solve a problem with the same kind of thinking that created it."

Albert Einstein.

## PROJECTS, PROGRAM AND PORTFOLIO

By *project portfolio* it is usually understood to be all the projects that are executed in an organization, or business unit. Projects in a portfolio do not have to be linked to each other, but they typically compete for the same resources. However, in a *program* all the projects are in synergy to enable delivery of an overarching goal.

One reason for dividing a project into several projects is to get a better perspective of the project and facilitate the management of it. Besides, the characteristics of the various tasks might be so different that it is hard to apply one standard method. It is therefore more effective to process each project separately.

One example of a program was NASA's space program in the 1960's. John F. Kennedy brought up the issue in his election campaign when he criticized the American space program. It was not for no reason the US was number two in the race for space. There was a distinct lack of initiative, innovation and vitality. Maximum endeavor did not happen until the President announced the goals for the American space race during a press conference on 25th of May 1961.

► "We go into space because whatever mankind must undertake, free men must fully share ... I believe that this nation should commit itself to achieving the goal before this decade is out, of landing a man on the moon and returning him safely to the earth."

John F Kennedy during a press conference in 1961 where he is holding up two fingers to illustrate the fact that the United States of America comes in second place in the space race.



## Project, Program and Portfolio – Main Issues and Differences

	Project	Program	Portfolio
goal of a	is to produce deliverables	is to achieve strategic change	is to coordinate, optimize and align with strategy
vision and strategy	are related through the business case of a project	are realized by a program	are aligned to and monitored in the portfolio
business benefits	are largely excluded from a project	are largely included in a program	are largely excluded from the portfolio
organizational change	is often excluded from a project	is usually included in a program	is excluded from the portfolio
time and costs	are defined in the business case and are manageable in a project	are roughly defined within the strategy, are broken down to individual projects within the program	are based on priorities and strategic targets in the portfolio

SOURCE: IPMA, KD 3.0

To realize the goal to go to the moon by 1969 at the latest, NASA had to initiate a series of projects. The manned space program was initiated in 1961. The race was on to recruit astronauts, construct rockets with sufficient bearing capacity, practice space walks, develop space suits, constructing a space capsule with a docking station, build a spaceship that could land on the moon, prove that it was possible to travel to the moon and back, and much more. It is considered quite a successful feat, even if some conspiracy theorists claim it actually never happened.

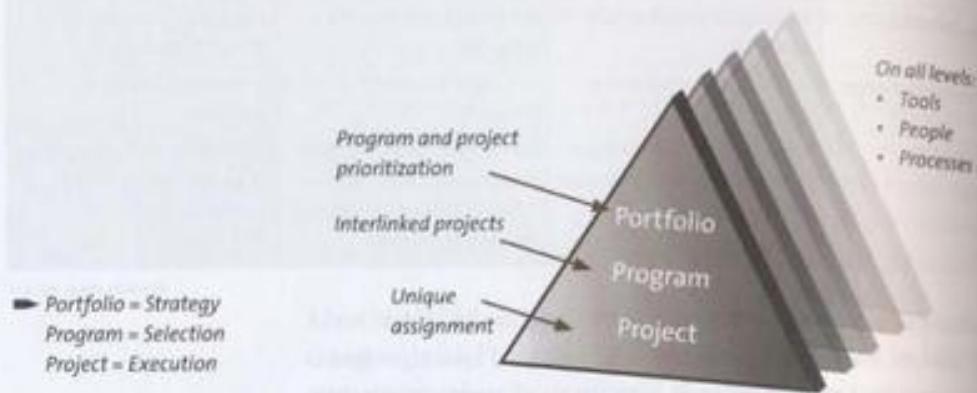
Another example of a project program is publishing newspapers. Every issue is a project, but a newspaper which is published regularly is to be considered a program. To collect money for an organization, e.g. the Red Cross, is also a program, where every collection or gala dinner is a project.

## Portfolio Management

The need for communication is pronounced between all levels in the "portfolio pyramid", from bottom to top and vice versa. The connection between the strategy in the top and the delivery at the bottom must be obvious for everyone in the organization. Organizations can only be successful if they do the right thing the right way. Portfolio management is needed to:

- Manage resources better
- Achieve better financial control

- Lead projects towards the organizational goals
- Identify and act and react on changes
- Reduce ineffective administrative tasks
- Achieve a positive throughput from the project, i.e. that the project leads to the project goal.



For the organization to function, the different projects need to be in synergy and resources channeled to the efforts that yield the most contribution and benefit. Selected projects should be explicitly connected to the organization's overarching goals and strategies.

#### The Standard for Portfolio Management, PMI.

If project and program management traditionally has focused on executing the tasks correctly, the portfolio management focuses on executing the correct tasks. The Standard for Portfolio Management is based on Organizational Project Management Maturity Model (OPM3®) which is a method used to analyze project maturity connected to A Guide to the Project Management Body of Knowledge (PMBOK® Guide), PMI's competence base in project management. The standard is of significant reference for anyone who is interested in project and program portfolio management.

Following subjects are covered in the standard:

- To trim down the organization through portfolio management.
- The role of portfolio management within the organizational structure in relation to the organization's strategy.

- How portfolio management can improve the implementation and upkeep of controlling documents and policies, and directives on the highest level in the corporation/organization.
- How to develop methods to show increased return on investment (ROI).
- Portfolio management reporting and how this can help achieving most from an organization's programs and projects.

Target groups for this standard is: Top executives, members of the Portfolio Management Office and/or strategic management Office, program managers, supervisors, educators, consultants and researchers. The standard is also beneficial for program managers, project managers and other project members and staff in a project or Program Management Office.

SOURCE / ARTICLE BY CHRISTIAN DE LOOS, SWERFEN BV



Grontmij, one of Europe's top consultancy and engineering firms, has developed a concept that illustrates the company's overall capacity to meet customer needs at different levels. The concept, which has two views (the client and the service provider), describes complex projects with a holistic approach.

A project organization should be based on a common objective for all parties involved, which starts with client's vision and goals for the project. Hence, a thorough situational analysis of the project's condition is critical in the planning process. Each level in the model is matched by a set of skills and services that Grontmij offers. These are based on the project's technical core (the design, construction supervision, and project management) and neighboring aspects that may influence the development of the project.

Program Management is the capacity to take total responsibility for all levels in the project, thus achieving synergies. E.g. knowing that the design of new railway tracks (technical core), is based on a further discussion on sustainable transport as a result of the ongoing climate change (the influential aspects), is key for staffing the project organization with the right set of skills. In addition to the matching technical core, Grontmij provides specialist skills in areas such as climate/environmental management, but also, for example, public relations expertise that could prove to be an important service for communicating the project's environmental benefits to a wider audience.

## RESOURCE MANAGEMENT

*Resource management* is the strongest reason why EPM should be implemented, since bottlenecks in the shape of resource shortage is something most corporations want to resolve.

A colleague in an IT department at a large government organization usually describes the resource situation like this: "We will need approximately 3,000 employees within the next three months, 500 in the three months that follow and after that, approximately 50 employees." The present number of employees is about 250. Why is it like this? Because all projects are scheduled to run at the same time and there is no project prioritization from the management. Whoever pushes the most will get the resources first, but this is a situation that can soon change. The solution is not to start too many projects in parallel, but focus on the projects that yield the most benefit to the organization. This also makes life easier for the staff, since they do not have to be involved in eight to ten projects simultaneously. That is not an effective way of conducting projects, any which way.

Above mentioned situation is not uncommon. According to a recent study by the American newspaper CIO specializing in business technology, projects are piling up in most IT departments. The demand is back on the level we saw in the 1990's; however there is not enough money to go around now, and the staff is not willing to work day and night either.

### Structuring the Resources

Resources can be described and structured just like when structuring activities in a WBS. There are two methods of breaking down and hierarchically structuring resources. One is the *Organizational Breakdown Structure – OBS*, which is based on a company or organization's divisions, departments, units, groups and project teams. It yields an overall picture of which resources are available, where they are and what kind of competencies they have. It is possible to gather from an OBS what kind of responsibility and authority the various resources in on-going projects have, on a departmental or an individual level, e.g.

The other method is the *Resource Breakdown Structure – RBS*, which has another hierarchical structure where the project is broken down according to type of resource. It is possible to show how a certain resource, e.g. a software programmer or specific equipment, is used in one or all projects that are being executed in the organization through an RBS. This is of great assistance when planning and following up on costs. An RBS can contain all kinds of resources, not only human resources.

Both OBS or RBS can be complemented with a *responsibility assignment matrix, RAM*, where activities that need to be executed are linked to the project members.

Project / Activity	TIME		RESOURCE		
	Start	End	Responsible	Participant	Approved

► What a responsibility assignment matrix might look like.

### SELECTION AND PRIORITIZATION

All organizations have limited resources. This fact determines how many projects can be executed simultaneously. The purpose of managing a project portfolio is to direct company resources to the most profitable project. The project portfolio contains the projects that are to be executed. The projects in the project portfolio are prioritized according to importance in relations to each other from their strategic significance, financial value and business risks.

### Strategic Significance

A project's strategic importance is determined on the basis of whether it is aligned with the organization's overarching goals e.g. product, market and organizational development.

Minor	Somewhat minor	Medium	Somewhat major	Major
Project 4	Project 2	Project 5		Project 3 Project 1

► Strategic importance categorization.

## Financial Benefit

The financial benefit is the return the project is calculated to generate, in relation to how large a part of the organization's critical resources the project needs.

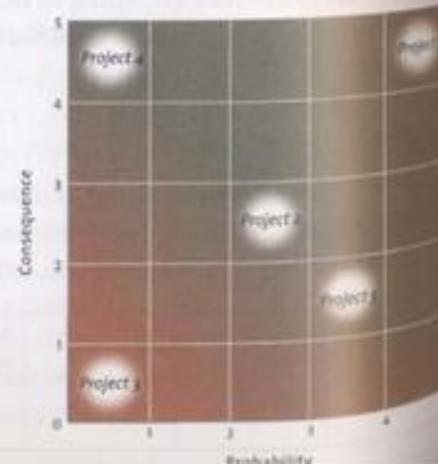
The importance of the financial value:

	Profit (1,000's)	Labor hours	Profit per critical resource	Importance
Project 1	500	100	5	Medium
Project 2	400	133	3	Minor
Project 3	780	50	15,6	Major
Project 4	250	50	5	Medium
Project 5	120	60	2	Minor

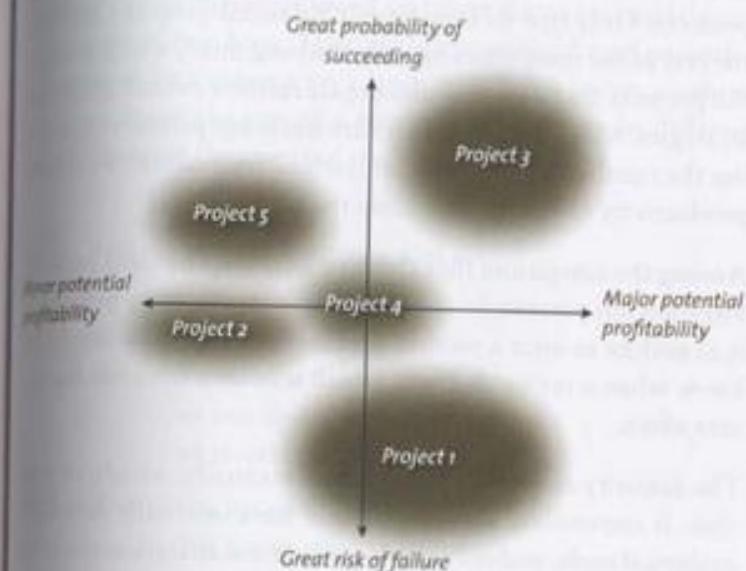
It is important to continuously follow up on utilized resources and assess the remainder of the work, during the execution phase. An advantageous method to use is the earned value management method. Projects that show a negative outcome should be reassessed or cancelled.

## Business Risk

There are always risks involved when executing projects. It is important to consider the business risk involved in the project during the selection process, i.e. what are the odds of actually realizing the project goal.

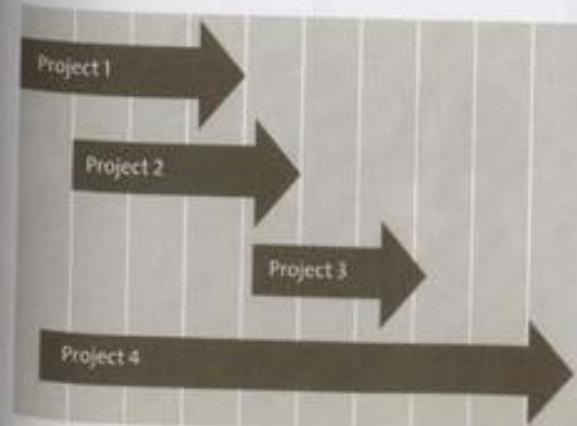


To get a good appreciation and understanding of the project portfolio's structure it is perhaps appropriate to make a positioning chart where the various projects are mapped out.



► Financial value and business risk in the project portfolio where the circles represent the project's strategic importance.

It is an imperative part of portfolio management to schedule the project portfolio's different projects. The organization's resources should be utilized to the optimum so that resource collisions are avoided or reduced.



► Scheduled projects.

## PORTFOLIO REVIEW

According to the American market analyst company Gartner Research, one in three companies lack criteria for evaluating projects. Only one in four have a balanced project portfolio, the rest of the companies have the "wrong mix", which is to say the projects do not match the organization's overall goals and strategies. Most companies execute too many projects considering the number of resources available. This inability to control productivity obviously decreases the profits.

Among the companies that claim to follow up on their projects, less than ten percent do so once a week, while forty percent do it as seldom as once a month. The rest of the companies do not know when a review is done, which tells us it does not happen very often.

The majority examine their projects manually, which, in principle, is impossible, while 25 percent have internally developed analytical tools, and only eleven percent use analytical tools that had been purchased for the purpose. The rest of the companies use a mixture of purchased and internally developed analytical tools.



### Status Meetings

SCANIA, a large Swedish manufacturer of heavy trucks and buses, carry out a project review meeting every Monday, where up to 120 projects are reviewed and their status assessed during the course of one hour. How is this possible? Every project is represented by a column on a large board that covers an entire wall in a room the size of a sports hall. Magnets in different colors illustrate the status of the project.

- Red Differing activity and no solution is found.
- Yellow Differing activity but solution is found. Only short of one decision from sponsor or steering committee.
- Green OK, according to plan. No action needed from sponsor or steering committee.
- White Activity which is not of importance right now.

A change in the status of a project (i.e. the color of the magnet) can be just as important as the status itself. A change indicates something is happening – for the better or for the worse.

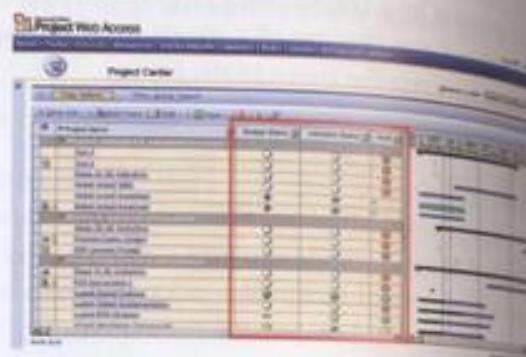
Success in projects is equally important for the entire SCANIA Corporation, and everybody should have the same view of the portfolio. Project managers and line managers are receiving the same information and this triggers knowledge sharing. This contributes to a healthy dialog between sponsors, project management and the executive management.

### IT-Support

Most project tools offer the possibility of presenting the status in an individual project as a project scorecard, where status is visualized through colors. It instantaneously generates a picture of how an individual project is progressing.

Project tools with portfolio support, *portfolio tools*, can present a summarized picture of the current status of all projects in the portfolio. An IT-based scorecard usually contains information on which phase the project is in, how it is performing in relation to the projected goal, delivery time, budget and the risk level.

► Overview of a project in a project portfolio where status is shown in a follow-up view in a Gantt Chart and in colors. Observe that it is important to know where the various colors derive from and which levels have been decided upon. If the colors are automatically generated, e.g. from a time reporting system, the results are probably more trustworthy. If status is based on subjective assessments only, there is always the risk that you might do what the ostrich does; stick your head in the sand when trouble comes around.



## IMPLEMENT IT-SUPPORT

Observe that it does not have to be an IT-based portfolio support system. However, an IT-based support system, in particular web-based, offers other possibilities to communicate.

Portfolio management can initially be a challenge for the company culture. Partly because many organizations are conservative by nature, and partly because new systems can create a "big brother-is-watching-you" feeling; something which is often resisted and detested.

Efficiency is created through the summary the project tool gives of the entire organization, while it is also simple to follow up on one project and on processes. It makes it simple to plan, manage and follow up.

Start the process on a small scale with a limited amount of functionalities and run a pilot on a few projects. Evaluate and increase the number of functionalities until the system eventually contains all projects and resources.

The implementation of an EPM solution, regardless of the system selected, should always be initiated with a clear and defined vision of what the company wishes to achieve, and originate from the company's business processes and structures. Requirements are then formulated and it is analyzed exactly what the technology has to offer. The risk of failure is great if the process is started at the wrong end, i.e. by first implementing a tool and then "teaching" the organization how to use it.

To successfully implement a portfolio support system, knowledge in change management processes and the business is required. Also an understanding of the technical possibilities and its limitations is required. To be able to generate and achieve full benefit, the EPM solution must be compatible to other IT systems that are already in use in the company. Information has to be gathered, distributed and compiled in the different systems. To reduce the risk of wrong information being used, a basic rule should be to store all information in one place. The project reporting should supply both the finance department and the project management with information that will facilitate the production of decision documentation, such as analysis and reports, or invoice information.

In which system should the time reporting take place; the invoicing system, labor hour reporting system, project management system or in another system? There are many questions to be answered before initiating the implementation.

The most common reasons for failure during an EPM implementation are:

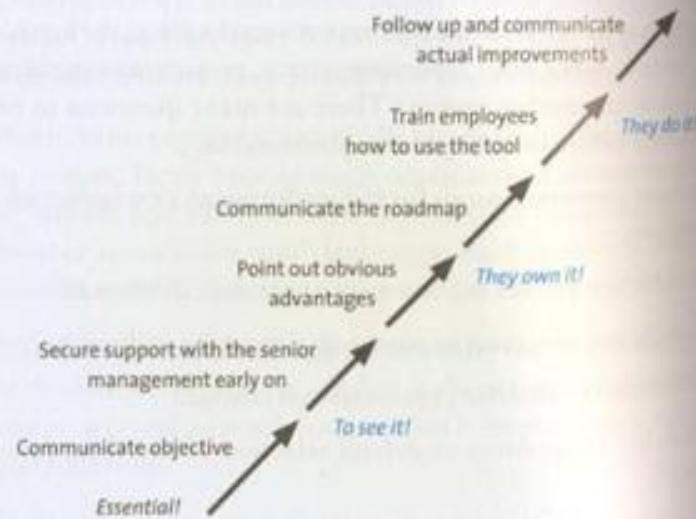
- ④ Insufficient project management experience in the staff.
- ④ Insufficient processes to ensure quality in the end result.
- ④ Believing IT can drive organizational change.
- ④ Inability in sponsors to defend selection of the "best solution".
- ④ Lack of dedicated and experienced participants in the team.
- ④ Pressured time plan that does not stay on schedule due to the complexity of the project.

- Lack of crucial IT systems, project management and change management.
- Lack of support in the organization.

Installing the IT tool is a relatively simple activity, while configuring the EPM solution is often time consuming, expensive and demands thorough planning and design. There are many parameters to be fed into the system in order to get the expected support from the IT solution, e.g. organizational structure, types of projects and competencies.

The cost of the configuration is usually much higher than the price of the tool. This cost can be avoided if a standard solution is selected, e.g. web-based portfolio support; however the chance to tailor the system to own preferences and requirements is lost. The tradeoff is somewhere between getting started sooner rather than later, and getting a tailor-made solution.

► Fight the resistance when implementing EPM.



SOURCE: MICROSOFT CORPORATION



## BUSINESS SYSTEMS

A competitor to the portfolio system tools are the project modules in business systems like SAP, Lawson, IFS and Peoples Software. These systems, however, are often not adequate for projects. What is evident, however, is that project tools and business systems are slowly merging. Every system deals with what it is best suited for, and are integrated in a total and comprehensive solution. It looks like the two systems will exist in a kind of symbiosis in the future. The project tools can be purchased together with a business system or be integrated into the company's current system.

## ADMINISTERING PORTFOLIO TOOLS

Who will oversee, maintain and administer the tool? Usually the IT department implements, trains the users and administers the tool. To place all responsibility on one unit in the company is not such a good idea though, as it might give the tool an IT-label, which could dampen the enthusiasm to actually use it. This is unfortunate since project tools should be utilized in all kinds of projects to have the right effect on the entire organization. It is therefore important to appoint a system owner who is responsible for the tool and who will take the organization's requirements and the IT-department's operational responsibility into consideration.

Preferably, a department directly under the senior management should be responsible for maintaining the necessary level of knowledge in the organization. The day to day operations can of course rest with the IT-department. It is not enough to carry out a training session on the tool, it is also necessary to make sure the users are knowledgeable in project methodologies.



# Project Management Office and Models

17

Establishing a Project Management Office, PMO, is a natural part of the efforts to increase project maturity in an organization. Project Management Offices are well established in some lines of business, but in general it is a very unusual phenomenon. As such, the concept has yet to reach its final form.

There are a number of professional project models available on the market. The characteristics and terminology differs from model to model. Unfortunately, experience tells us that project models are often not used to the extent that was intended.

## PROJECT MANAGEMENT OFFICE

DURING the last decade or so the *Project Management Office*, PMO, has developed and now includes both the support for, and control of projects. Project Office and Project Management Support Office are other names used to describe project management offices.

In most cases, the purpose of establishing a project office is to facilitate better coordination of resources, a standardization of the review process, reporting and further developing the quality of the project work done.

The Project Management Offices can be used to gather competence in one place. They can play an important role in the organization's overall project maturity development.

Project Management Offices can be found on different levels. A Project Management Office on a project level has a more administrative role in the project, while a project office on an organizational level plays a more strategic role.

## Project Management Office Tasks

Maintaining the project portfolio:

- Qualifying recommended projects.
- Prioritizing projects against one collective budget.
- Allocating resources to the various projects.
- Managing and reviewing projects.
- Securing that individual projects deliver expected business value.

Developing project tools:

- Implementing and administering a project model.
- Establishing and administering a project database on the company intranet.
- Creating tools to facilitate structuring and planning.
- Creating tools for resource allocation.
- Creating processes and methods for reporting and review.

Creating project support, e.g.:

- Supplying resources and competences.
- Administrative support.
- Training project group members and sponsors.
- Learning from executed projects.
- Providing internal consultancy assistance.

Administering competence management:

- Developing mentor/mentee systems to introduce new people into projects.
- Coaching project managers.
- Mentorships.
- Certifying project managers and project team members.
- Developing career and competence ladders.

Quality assurance responsibility:

- Completing project reviews.
- Creating routines for change administration.
- Analysis and modifications.

Even within the public sector, project offices are set up to ensure anticipated operational benefits from the projects being executed. The Project Management Office thereby becomes a tool to manage the organization.

The Government Office of Sweden has initiated eight large projects to carry out the government's policies to contribute to sustainable development. The projects are coordinated and run by the Ministry of Enterprise, Energy and Communication. The process is continuously monitored, and resources are re-assigned and redistributed according to needs and new government decrees.

The Swedish Government has also procured project management training courses to increase and broaden their competencies, before taking over the EU Chairmanship in 2009.



## PROJECT MANAGEMENT MODELS

Several studies have shown that the lack of a standard project management model, also called *project model*, is one of the biggest reasons why projects fail. It is easy to understand why project offices and project models are so important then.

The establishment of a Project Management Office should be integrated together with the implementation of a project model while simultaneously enhancing the employees' competencies. Initially, the project model's scope should be narrow. Gradually more functions can be implemented.

There are a number of professional project models available on the market. The characteristics and terminology differs. They have all emerged from the experience that has been gained by companies and organizations through hands-on project work, and through research in leadership and organizational management at universities and other learning institutions.

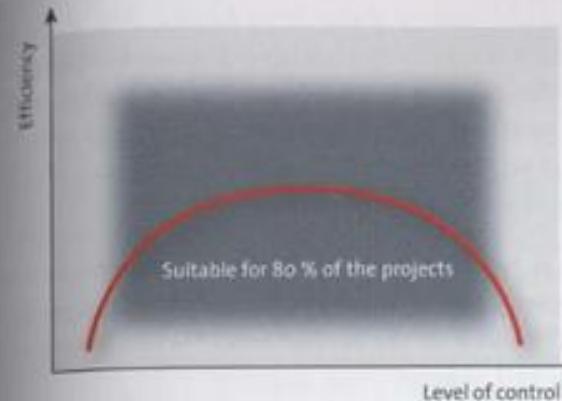
A project model consists of three elements:

- Processes
- Roles
- Templates and documents

It is essential to find a governance model that yields sufficient control, but is not considered limiting. Most extreme is not to use any form of governance model at all, or use a very complex one. The former creates anarchy in the organization, while the latter impedes creativity.

Letting a successful project form the foundation for a model might also be unfortunate. There might have been certain circumstances for that specific project that are not at all suitable in other connections. There is a fine line between finding a model that yields control over the project, while at the same time avoiding it being perceived as administratively taxing by the project managers.

For a project model to be successfully applied and utilized, the methods and approaches need to be well established in the



Project management model.

organization. Internal marketing and training on the model is often required. Unfortunately, experience tells us that project models are often not used to the extent intended. There are too many examples of project models that have failed, despite a high ambition level during implementation.

Often it is just those who have been a part of the implementation who use the model, while the rest of the organization does not think it suits them and their work methods. The reason for this is usually that the model feels limiting or administratively burdensome. Also, it is not uncommon that the company's project model is unfamiliar to a great deal of the company's employees.

### Only one in three companies has a project model

- 37% have implemented a project model
- 15% has an internally developed project model
- 48% has no project model

The figures are from a recently produced study, based on a number of randomly chosen companies in different trades in Stockholm. The companies that had implemented a project model, or developed their own, did not apply the model on a regular basis unfortunately.

SOURCE: HHL BUSINESS SCHOOL

The reasons are plentiful. Usually, the ambition level was too high when the model was implemented. Perhaps too much was included, which made it difficult to handle and work with. Another reason might be that the process had not been established with the users. It is important that the senior management takes its responsibility by explaining the purpose of the implementation, and by rewarding those employees who apply the model in their project work.

One advice is to choose a model which is uncomplicated. It is always possible to increase functionality as you go along. Continuous training on the project model is needed, as well as maintenance and upkeep.

The most important thing is perhaps not that everybody uses the entire model, but that standard documents, templates and terminology are used by all.

A project model does not have to be used for all assignments. It might even be inappropriate to force the use of the model in smaller assignments.

The senior management should set up criteria for what an assignment should consist of to qualify as a project and to use the chosen project model. One requirement could be that the project must exceed more than a certain number of days, or that the budget must be of a particular size.



## Definition of the Project Lifecycle in Different Project Models

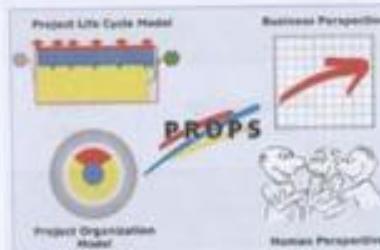
Project model	Initial phase	Intermediate phases				Final phase		
		Planning	Execution					
Projectbase	Pre-study	Execution				Closure		
	Pre-study	Execution				Conclusion		
PRINCE2	Prepare		Execute			Conclude		
	Starting up a project	Initiating a project	Control of a stage		Managing stage boundaries	Closing a project		
RACI	Definition	Operations analysis	Solution design		Building	Transition		
			Do		Production			
R3A Systems Project Model	Idea	Plan	Do					
	Feasibility study	Preparation	Realization					
IPPF	Pre-study	Concept study	Development	Final development	Industrialization	Deployment		
	Pre-study	Concept specification	Execution					
P3M	Initiating	Planning	Execution					
			Execution					
Tilbury	Pre-study	Project start preparations	Analysis and design	Construction and test	Implementation	Closure		
	Initiation	Projecting	Procurement			Closure		
SAP operator	Concept / Feasibility	Planning and definition	Build & test	Rollout & soft launch	Handover-launch achieved	Run		
	Pre-study	Analysis	Execution					
Advertising agency	Analyses and strategy		Concept and creation		Realization	Evaluation		
	Analyses and strategy			Realization		Evaluation		

Some of these project models are summarized on the following pages. For a more detailed description of the models, please contact the companies that own and manage them. For a full description of the project model Projectbase, see appendix.

An inventory of some of the project models on the market and a collection of company-specific models, that shows the similarities are much greater than the differences.

## PROPS™

PROPS™ is a generic framework for project management, common to the entire multiproject organization, and for all types of projects. By describing projects using two models and two complementing perspectives, PROPS™ provides support for all aspects of project work.



► PROPS provides a general model for project work, defining what should be done in the project and when it should be done.

PROPS™ lifecycle model has three levels: project starting process, project management process and project work model, which are throughout the model symbolized by the colors red, blue and yellow. The standard version of PROPS™ has six tollgates:

0. Decision to start project analysis (optional).
1. Decision to start project planning.
2. Decision to establish the project and start project execution.
3. Decision to continue execution according to original or revised plan.
4. Decision to handover project outcome to internal receiver and external customer (if applicable).
5. Project outcome accepted, decision to start project conclusion.

The project management process in PROPS™ comprises two parallel processes covering the entire lifecycle of the project. The knowledge areas give an overview of each process. They are closely knit to the existing international competency standards for assessing project management.



The contents of the work model, the yellow part of the lifecycle, are not defined in PROPS™ as the framework of PROPS™ is generic, but are adapted to the actual needs of the project. However, there are supporting PROPS™ applications available which might be useful in this process. PROPS™ is developed and owned by Ericsson AB in close collaboration with Semcon Project Management who owns PROPS™ v4, and also markets, sells and provides training on the model.

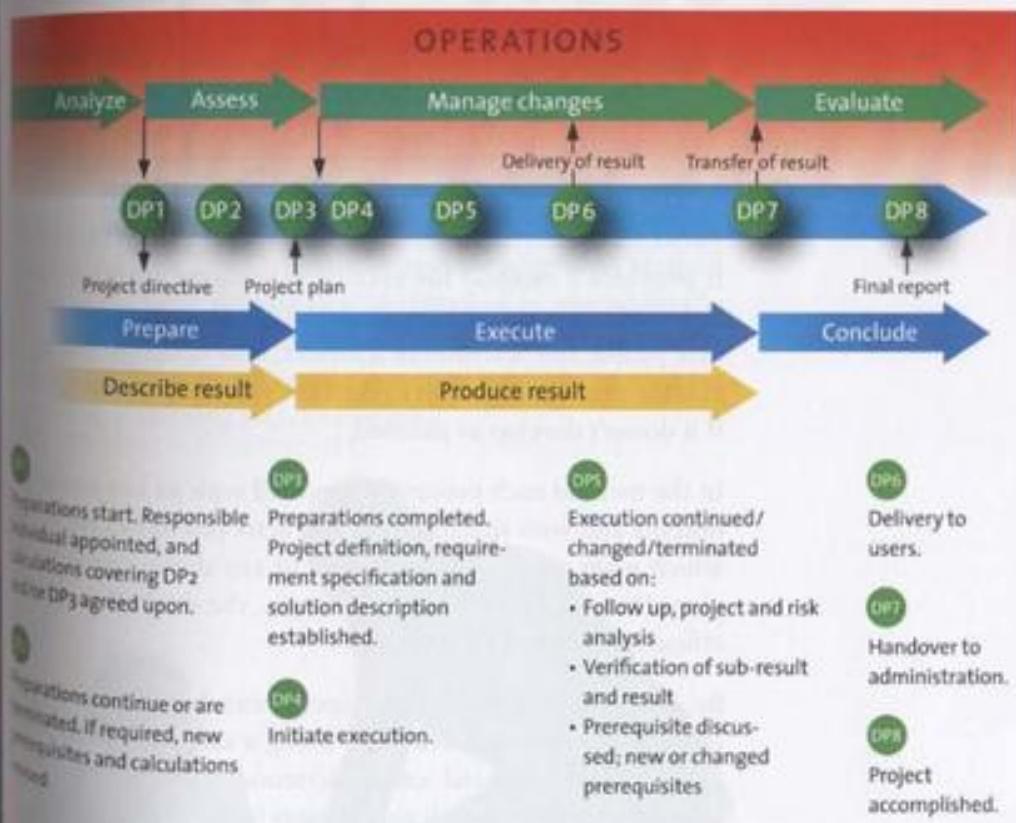
## Practical Project Steering – PPS

PPS is used to actively plan and manage projects. The model supports project work via checklists and templates. One of the basics of PPS is to work with clearly defined and established tollgates. Another is to be prepared when difficulties arise. Key words are personal accountability, openness, confidence and trust. To control the work progress, three basic processes are applied:

- Commitment – definitions and agreements.
- Management – applying decisions, strategy selection and work delegation.
- Feedback – follow up, verification and changes.

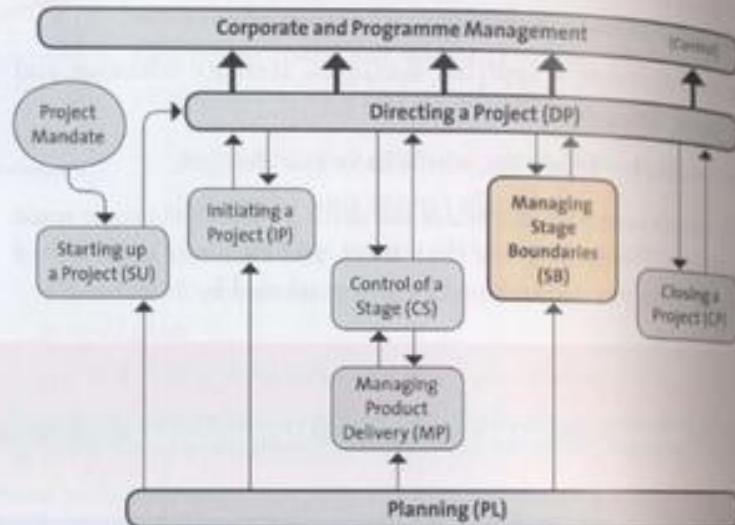
An important part of PPS are the skills a project manager must possess. There are more than forty, and each one is described separately. PPS is developed by and marketed by TietoEnator.

Red/Green = Business model  
Blue = Management model  
Yellow = Production model



## PRINCE2

PRINCE (Projects IN Controlled Environments) was developed in 1989 by the Central Computer and Telecommunication Agency, now renamed Office of Government and Commerce, OGC, as a UK Government standard for IT project management. Initially developed only for the need of IT projects, the latest version, PRINCE2, is designed for all types of management projects.



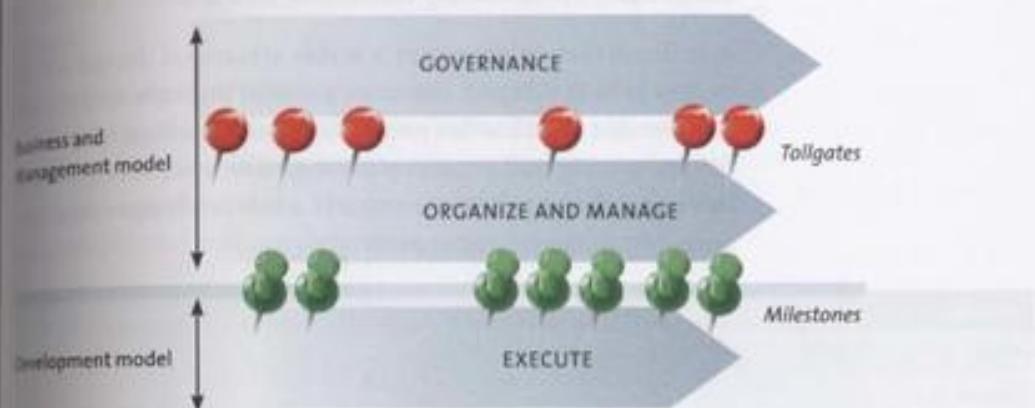
PRINCE2 is a structured approach to project management. It provides a method for managing projects within a clearly defined framework. PRINCE2 describes procedures to coordinate people and activities in a project, how to design and supervise the project, and what to do if the project has to be adjusted if it doesn't develop as planned.

In the method each process is specified with its key inputs and outputs and with specific goals and activities to be carried out, which gives an automatic control of any deviations from the plan. Divided into manageable stages, the method enables an efficient control of resources.

By closely monitoring the project it can be carried out in a controlled and organized way. Being a structured methodology widely recognized and understood, PRINCE2 provides a common language for all participants in the project.

## DEVELOPMENT MODELS

Project models and *development models* should be kept separate from each other. A project model describes how to control and manage a project on an overarching level, while a development model describes how to produce the result, often on a detailed level. The development model is on the lower level of the project.



Dynamic development models like Incremental Development, the Spiral Model, The Dynamic System Development Method (DSDM), and Time Boxing should therefore be placed on the lower level and can advantageously be connected to a project model. Together they make up a complete model to be used for organizing, managing and developing.

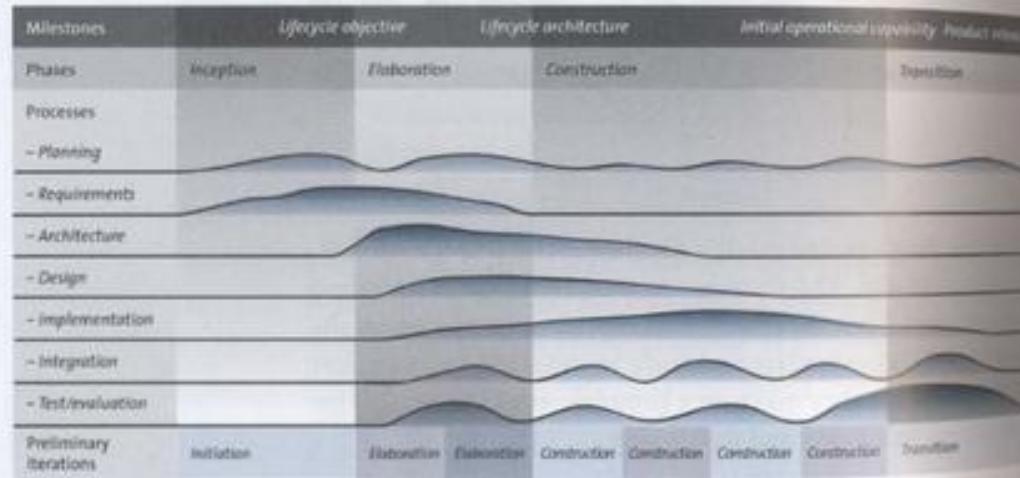


## RUP®

Rational Unified Process, RUP®, is a productized software development process framework based on the method Unified Process, UP, which was developed in the beginning of the 1990's, inspired by object-oriented design by Rational Software Corporation, a division of IBM since 2003.

RUP® is a process framework. The concrete process a project follows arises when RUP® is configured. The Unified Modeling Language – UML is closely associated with RUP®.

It is important to construct a stable structural design for the system to be developed. Use cases are used throughout the entire requirement specification process and form the basis of analysis, design, testing and project planning. The system is gradually built and the requirement process analyze–design–programming-test is carried out repetitively.



■ RUP® is an iterative development process that consists of four phases that interact continuously.

Standard milestones in the RUP® process:

1. Lifecycle objective milestone – establishing if the project is feasible.
2. Lifecycle architecture milestone – requirements, solution design and project plan stable.
3. Initial operational capability milestone – result stable enough to be utilized.
4. Product release milestone – project goal accomplished.

Many companies apply RUP® in one shape or another. RUP® is often used as a production process in project management models like PROPS™ and PPS.

## Theory and Reality

All analysis and planning methods give a simplified picture of reality. This is primarily because it is not possible to handle a lot of factors simultaneously in a model without getting lost in the minutiae.

The project manager needs to possess knowledge and understanding to see the limitations in every method to be able to draw straight conclusions. The limitations do not, however, reduce the benefit of using these tools. The project work would be so much more complicated without these tools.

Likewise, do not use checklists, but discernment. Checklists are great support for the memory when something has to be done. However, do not forget that the people who have made the lists are done so from their needs and perspectives which might not entirely relate to the project you are to execute. Make your own checklists for your own purpose, by all means inspired by others.

- Coffee break
- Result
- New organization
- Customer surveys
- LUNCH
- New campaign
- Goal - joint effort!
- Surprise...

## PROJECT ANATOMY

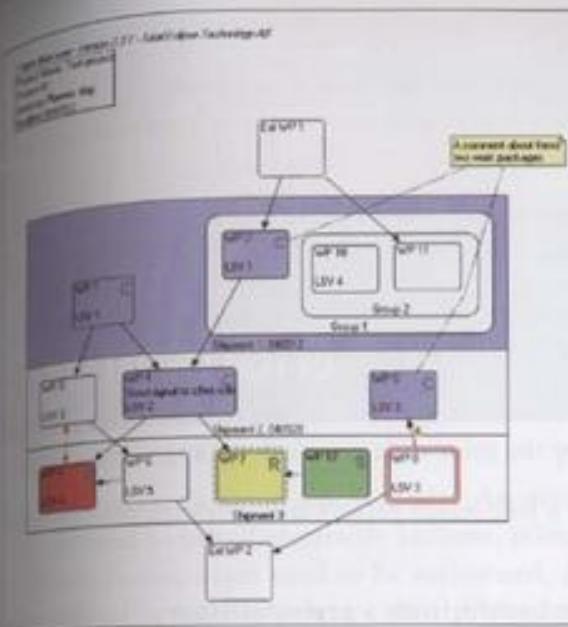
The term *project anatomy* arose at the leading Swedish telephone and data communication systems provider LM Ericsson during the latter part of the 1990's, and has over time been adapted by many larger companies involved in complex product development. It is a method that defines and visualizes a project's components and their reciprocal relations to each other.

- Yields an overview of the project's progress and status.
- Shows relations to other projects.
- Shows complex structures in a coherent way.
- Produces documentation for re-planning – dependencies provide good guidance.

Project anatomies were developed in reaction to the much too detailed project modeling that came about by the help of UML, Unified Modeling Language. When the projects became large and complex, it was almost impossible to maintain the project description. Another abstraction level was needed, above the modeling.

Project anatomy presents project managers, system architects, test leaders and integration leaders with a collective view of a project. They all have a strong influence on the project planning, and the project anatomy is their shared work area. The project manager models his project based on critical client needs, resources, competencies and time aspects. The system architect does his modeling based on the logics of the system and dependencies in relations to components, sub-systems, data and system integrity. The test leader and the integration leader is on the other hand more focused on describing what must be tested and integrated.

A project anatomy consists of a number of work packages with related dependencies. A work package is often a smaller sub-project where two to four people work fulltime two to four weeks to realize a number of functions or requirements.



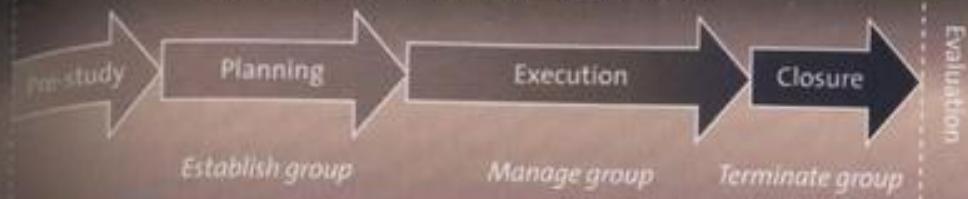
► Project anatomy designed by Paipe, Project Anatomy and Integration Planning Environment. A web-based tool used to model a project anatomy and maintain an integration plan.

SOURCE: TOTAL ECLIPSE TECHNOLOGY

The relationship between dependencies describe one work package being dependent on another work package being tested and ready, before the first work package can be tested and ready. The arrows directions symbolize the order in which the work packages have to be tested.

The work is often done through integration, which is building the systems so that at given times there will be a fully functioning system, however the functionality will gradually increase. In an anatomy, this is often described as a block where several work packages are placed, and these then realize the functions wanted for a certain increment. The most important part of an anatomy, however, is what you choose to visualize. This is something that should be adapted to roles.

Colors illustrate the different statuses of the work packages. Short descriptive texts, so called work package characteristics, are also convenient when presenting the requirements or functions that are included, and the individuals and resources that are signed up.



18

## Certifications

Certifications are common practice today. An electrician needs to be certified to install electricity systems, pilots need flight certificates, accountants need to be authorized, doctors need their medical licenses to practice their profession and everybody needs a driver's license to drive on public roads. The list could go on forever.

It is strange that similar requirements are not placed on project managers. Certifications of project managers generally provide accurate information on each individual's qualifications. Such information will undoubtedly reduce insecurity for those who are looking to hire project managers.

# PROJECT MANAGER CERTIFICATION

CERTIFICATIONS of project managers are used properly, it contributes to a positive reputation of the company and the project managers, since it works as a qualifier for competence and capability. The certification procedure can also work as a checklist of what knowledge should be required of project managers and in continuation of this, what a company's training courses on project management should cover.

is what The ABB group, a power and automation technology corporation, has done to develop the project management competencies in the corporation. The investment lead to, among

other things, more pleased customers and less contractor problems. At the same time, the results from the projects were also improved.

As companies and organizations to a greater extent work on projects, an increased amount of the companies' profits come from the project's financial results.

This is one reason why the interest in certified project managers is rising. Another reason is the increased dependency on suppliers and contractors.

The credentials of the project managers might be the decisive factor for a sponsor choosing between two equal tenders. Credentials become a form of quality declaration on what is procured.

Since getting certified costs time and money it is important that experienced value is satisfactory. To get certified can be compared to taking insurance. It may be difficult to see the immediate value and benefit from it when new and large assignments keep coming in, but one single project failure, or one single mistake in a larger project, is most likely to cost the company more money than training and certification of a large amount of employees in a company or public authority.

Project managers who have proved their competencies through becoming certified, will almost certainly deliver better results in a shorter time and with lower costs than project managers who have not yet been given the opportunity to improve their self-knowledge and missing competencies through certification.

#### ABB's career ladder for project managers:

- I. Company Senior Project Manager
- II. Senior Project Manager
- III. Project Manager Specialist
- IV. Project Manager



It is not a new phenomenon to certify project managers. Different forms of certificates have been issued for many years, often as a kind of knowledge examination from training institutions. Unfortunately these local certifications have not become widely recognized, and thus the value is questionable.

This is why it is important to choose a certification which is internationally recognized and acknowledged.

A full separation between certification, education and training is required. As a matter of course, the candidates need education and training in project management to be successful in the certification process. However, no specific kind of education or training is required for the certification.

#### Project Management Institute – PMI

The most recognized and acknowledged certification of project managers these days is the Project Management Professional, PMP, which is carried out by the Project Management Institute, PMI, the leading membership association for the project management profession.

PMI was founded in 1969 in the United States, and have today approximately 70 local PMI chapters around the world. More than 200,000 Project Management Professionals have been certified since the first certification took place in 1984.

Besides the PMP certification, PMI offers credentials for Program Management Professional, PgMP™. The certification is designed for experienced project managers who have leadership responsibilities in program and project portfolio management, usually within larger organizations and corporations.

Someone with little or no project experience can get certified through the Certified Associate in Project Management, CAPM. This certification is mostly for students and project managers starting on their career. A CAPM is an individual who has learned basic knowledge and experience within project management.

## PMBOK® Guide

All PMI certifications today are based on "A Guide to the Project Management Body of Knowledge, PMBOK® Guide", which describes project management in five processes: Initiating, Planning, Executing, Monitoring, and Controlling and Closing. These are further broken down into approximately 40 processes, with well defined entry and exit parameters and instructions on what should be done in the various processes. Tools and appropriate methods to support each process are available.

An essential part of PMI is the nine Project Management Knowledge Areas, which are also found in ISO 10006 and several project models.

Process Groups	Initiation Process Groups	Planning Process Groups	Executing Process Groups	Monitoring and Controlling Process Groups	Closing Process Groups
Knowledge Areas					
Project Integration Management	Develop Project Charter Develop Preliminary Project Scope Statement	Develop Project Management Plan	Direct and Manage Project Plan Execution	Monitor and Control Project Work Integrated Change Control	Close Project
Project Scope Management		Scope Planning Scope Definition Create WBS		Scope Verification Scope Control	
Project Time Management		Activity Definition Activity Sequencing Activity Resource Estimation Activity Duration Estimation Schedule Development		Schedule Control	
Project Cost Management		Cost Estimating Cost Budgeting		Cost Control	
Project Quality Management		Quality Planning	Perform Quality Assurance	Perform Quality Control	
Project Human Resource Management		Human Resource Planning	Acquire Project Team Develop Project Team	Manage Project Team	
Project Communications Management		Communications Planning	Information Distribution	Performance Reporting Manage Stakeholders	
Project Risk Management		Risk Management Planning Risk Identification Qualitative Risk Analysis Quantitative Risk Analysis Risk Response Planning		Risk Monitoring and Control	
Project Procurement Management		Plan Purchases and Acquisitions Plan Contracting	Request Seller Responses Select Sellers	Contract Administration	Contract Closure

SOURCE: PMBOK® GUIDE, THIRD EDITION, 2004.

The fourth edition of "A Guide to the Project Management Body of Knowledge, PMBOK® Guide" will be published in the beginning of 2009. The biggest change in PMBOK® Guide Fourth Edition is that projects are now also described from a program and portfolio perspective. Descriptions of various project roles have been developed, and project and program offices have been further elaborated on. The entire planning process has been improved upon and is more well-defined now.

## Requirements and Certification Process

To be eligible for a certification, you must meet specific guidelines that objectively measure experience, education and professional knowledge. You also have to agree and adhere to the PMI Code of Ethics and Professional Conduct. There are several credential handbooks to assist in the process.

The level of education will determine what the requirements on experience are, when doing the PMP or PgMP™ certification.

### PMP

**Category 1:** The following requirements are needed for the individual who has a Bachelor's Degree or corresponding international degree:

- 4,500 project manager contact hours during the last eight years.
- 35 hours of formal project management education.

**Category 2:** The following requirements are needed for the individual who has a high school diploma:

- 7,500 project manager contact hours during the last eight years.
- 35 hours of formal project management education.

### PgMP™

**Category 1:** The following requirements are needed for the individual who has a Bachelor's Degree or corresponding international degree:

- Four years of project manager experience needed during the last 15 years, and four years a program manager.

**Category 2:** The following requirements are needed for the individual who has a high school diploma:

- Four years of project manager experience needed during the last 15 years, and seven years a program manager.

#### CAPM

There are two ways of obtaining a CAPM certification. This is done either through project work or project management education.

#### Category 1:

- 1,500 hours working in a project team.

#### Category 2:

- At least 23 hours of formal project management education.

It is important to prepare thoroughly before the certification. All certification levels are comprised of 200 multiple-choice questions, and the allotted time to complete the examination is four hours. 61 percent correct answers are required to pass the exam. This might seem an easy feat, but if English is not your mother tongue and you are not familiar with the American project terminology, it is all too easy to fail the exam.

It is therefore important to allocate plenty of time for studies and trial exams. There are many aids such as preparatory training courses and trial exams available, which can be purchased directly from PMI, or from consultancy and coaching companies.

During the PgMP™ certification process the individual is also tested as a program manager through a web-based multirater assessment, where a team of colleagues and managers will assess the abilities to perform tasks that are pertinent to program management. PMBOK® Guide and the "Standard for Program Management" are used as support in this process.

The credentials are only valid for a limited number of years. It is valid during the calendar year the certification takes place, and the following three years. An extension of a PMP certificate requires continuous project work according to the rules and regulations determined by PMI.

#### International Project Management Association – IPMA

In Europe the International Project Management Association, IPMA, an association of approximately 40 member associations founded in 1965, has developed a certification program which purpose is to support competence development and career paths within the project management discipline. IPMA's certification program has been introduced in more than 40 countries and so far, approximately 60,000 project managers have been certified in one of the program's four levels. The certification is based on ISO/IEC 17024 standard "General requirements for bodies operating certification of persons".

#### IPMA Four-level certification system

**Level A:** A Certified Project Director is able to oversee an important portfolio or program.

**Level B:** A Certified Senior Project Manager is able to manage complex projects.

**Level C:** A Certified Project Manager is able to lead a project with limited complexity.

**Level D:** A Certified Project Management Associate is able to apply project management knowledge when participating in a project.

Project management is the primary objective of the certification scheme, not the project itself. The levels provide a suitable framework for developing career paths and organizational maturity models as well as personnel development programs of individuals, companies and other organizations.

#### Competence Baseline

IPMA Competence Baseline (ICB 3.0) is the foundation for IPMA's certifications. It is a frame of reference that describes IPMA's view on project management and what skills a project manager is expected to have to reach the different levels. ICB also supervises the certification process and how the assessment is done.

One requirement is that certification and education/training is kept apart. No specific training is required to get certified, but the chance to succeed will increase if theoretical skills in the project management discipline are updated, e.g. by taking a course.

An IPMA certification assesses the technical, behavioral and contextual competence. The ICB is describing project management in three ranges containing related competence elements:

**20 technical competence elements – the project management matter, on which the professional are working.**

- |  |                                  |
|--|----------------------------------|
| 1.01 Project management success        | 1.11 Time & project phases       |
| 1.02 Interested parties                | 1.12 Resources                   |
| 1.03 Project requirements & objectives | 1.13 Cost & finance              |
| 1.04 Risk & opportunity                | 1.14 Procurement & contract      |
| 1.05 Quality                           | 1.15 Changes                     |
| 1.06 Project organization              | 1.16 Control & reports           |
| 1.07 Teamwork                          | 1.17 Information & documentation |
| 1.08 Problem resolution                | 1.18 Communication               |
| 1.09 Project structures                | 1.19 Start-up                    |
| 1.10 Scope & deliverables              | 1.20 Close-out                   |

**15 behavioral competence elements – the personnel relationship between the individuals and groups managed in the projects, programs and portfolios.**

- |                              |                          |
|------------------------------|--------------------------|
| 2.01 Leadership              | 2.09 Efficiency          |
| 2.02 Engagement & motivation | 2.10 Consultation        |
| 2.03 Self-control            | 2.11 Negotiation         |
| 2.04 Assertiveness           | 2.12 Conflict & crisis   |
| 2.05 Relaxation              | 2.13 Reliability         |
| 2.06 Openness                | 2.14 Values appreciation |
| 2.07 Creativity              | 2.15 Ethics              |
| 2.08 Results orientation     |                          |

**11 contextual competence elements – the interaction of the project team within the context of the project and with the permanent organization.**

- |  |   |
|--|---|
| 3.01 Project orientation                         | 3.07 Systems, products & technology         |
| 3.02 Program orientation                         | 3.08 Personnel management                   |
| 3.03 Portfolio orientation                       | 3.09 Health, security, safety & environment |
| 3.04 Project, program & portfolio implementation | 3.10 Finance                                |
| 3.05 Permanent organization                      | 3.11 Legal                                  |
| 3.06 Business                                    |   |



► The Eye of Competence.

## Requirements and Certification Process

### IPMA Level A: Certified Projects Director

Has at least five years of experience in portfolio management, program management or multi-project management, of which three years in responsible leadership functions in the portfolio management of a company or organization.

### IPMA Level B: Certified Senior Project Manager

Has at least five years of project management experience, of which three years in responsible leadership functions of complex projects.

### IPMA Level C: Certified Project Manager

Has at least three years of project management experience and is responsible for leadership functions of projects with limited complexity.

### IPMA Level D: Certified Project Management Associate

Experience in the project management competence elements is not compulsory; but it is an advantage if the candidate has already applied his project management knowledge to some extent.

The certification is a process where the project manager's competence is evaluated by assessors in relations to methods, experience and behavior. It is advisable to get help from a colleague or mentor during the self-assessment process to get a more nuanced evaluation of your own skills and knowledge. It is an advantage if several individuals go through this process together. This way it is possible to help each other and discuss how things are done within the organization you work in. Project experiences should be fresh in mind, preferably collected within the last five years.

Certification processes are initiated by an introductory meeting where a written test is completed. It takes approximately two months to complete certification level B, while level C takes about two months. Self-assessment, a summary of project management experiences, participation in a workshop and interviews with assessors is required in both processes. A simple self-assessment and a knowledge test is all that is needed to be certified on level D.

### The validity on IPMA certifications is limited:

An IPMA certification on Level A, B and C is valid for five years, after that a simple re-certification is required to maintain certification. A certification on level D is valid for ten years.

### National Competence Baseline

In several countries, Member Associations, MA, has produced local language guides, so called, National Competence Baseline, NCB. These guides are to some extent adapted to local circumstances, but nevertheless the structure in the ICB must be adhered to. The certification process can differ slightly between the countries. It is therefore possible to get certified in the local language, which many people feel improves their chances of success.

### PMI vs. IPMA

The need for project managers is increasing, and getting certified might be a career move and lead to interesting work assignments for the individual person. Also, the demands on project managers' increase; in the United States it is more often than not, a requirement in procurements that projects have PMP-certified project managers. A representative from the local Chapter of PMI in Sweden says Europe and Sweden is heading in the same direction. There is no doubt that offering certified project managers, as well as connection to a network of competent people, can be decisive in a procurement process.

	PMI			IPMA			
	CAPM	PMP	PgMP®	Level-D	Level-C	Level-B	Level-A
Assessment of project manager experience		x	x		x	x	x
Assessment of technical competence	x	x	x	x	x	x	x
Assessment of behavioral competence			x		x	x	x
Written exam	x	x	x	x	x	x	x
Self-assessment				x	x	x	x
Project report						x	x
Multi-rater assessment			x				
Workshop					x	x	
Interview					x	x	x

One should not consider PMI and IPMA certifications to be in conflict. On the contrary, they can be combined with great success. Organizations that want to certify their project managers should start with PMP-certifications to build knowledge of the terminology and methodology that PMI represents. The organizations can then move on to IPMA certifications and use this as a tool for individual competence development of project managers. The four IPMA levels create a career path for project managers, while the certification yields valuable feedback on potential areas of improvement for the organization and the individual project manager.

### MY OWN EXPERIENCE

In 2002, I passed the IPMA certification on level C, as one of the first in Sweden. The certification process gave me valuable feedback on where I was as a project manager. Personally, it was well vested time as it increased my self-confidence, and also gave me an insight into what I needed to improve on.

I recommend getting help from a colleague or mentor during preparations. It is a large subject to cover, and the work on the self-assessment and listing project management merits is time-consuming, even when you have someone to discuss with.

Most candidates who fail a certification seem to lack knowledge in project methodologies. It is most peculiar that active project managers in major corporations and organizations have such shortcomings. However, the ones who have been certified have better soft leadership skills. Is it more fun to study human behavior than learning to plan and recognize the critical path, or is something missing in the project training courses available? I even have great insight into the PMP-certification process since I have coached several certification candidates and acted as instructor on preparatory courses. It is necessary to read the PMBOK® Guide thoroughly and read complementing literature e.g. from PMI, before going through the PMP-certification. This yields valuable understanding and broadens the knowledge area.



There are a large number of test exams available from PMI and independent consultancy companies to help in this preparation phase. If the exam is passed, which approximately 50–60 percent usually does, you have proof of your theoretical knowledge. You do not, however, get any feedback on how skillful you are at applying this knowledge when acting as project manager.

The feedback from people who have been certified shows that it is valuable to go through this process. It has, among other things, become obvious to them that it is very important to delegate, apply a standard company project model, manage the project's surroundings, utilize risk analyses, deliver on time and last but not least, live up to the client's requirements. Many project managers have successfully advanced their careers through certifications.

## CAREER LADDER FOR PROJECT MANAGERS

Project manager competence needs to be developed continuously. You are never full-fledged. You can work in projects your entire life and still find areas that can be improved upon.

No matter which level you are on in your career, you need the necessary competence to structure, plan and execute assignments in close cooperation with other people. The higher the position, the more important it is to act as a leader.

Is it a requirement to become a line manager to have a successful career? Most major corporations and organizations have predetermined career paths for managers. Very few offer the same for project managers.

Competence and career ladder for project managers.

Senior Project Director

Senior Project Manager

Project Manager

Project Management Associates

One of the major banks in Denmark has developed a career ladder for project managers, based on the competence requirements in IPMA's four certification levels. The bank has then defined which kind of projects and on which level of complexity a project manager on a

certain level can act. Because of this, it is possible to assign the most suitable project managers to the right projects.

The career ladder has been helpful when planning and executing competence development. It has also proved to be useful in recruiting processes.

The same train of thought does exist with other companies. The training and consultancy company Mindset has been commissioned by the telecom operator TeliaSonera to produce a guide called Career and Competence Ladder for Project Managers at TeliaSonera, PMCL, which is based on IPMA's ICB 3.0.

The PMCL will help TeliaSonera:

- o Define standard group required competencies for project managers.
- o Attract, retain and develop project managers.
- o Secure the right project management knowledge to the more complex projects.
- o Achieve a standard project culture within TeliaSonera.

Assessing an employee's knowledge, competence, and goal setting for personal development is a four step process:



1. Study TeliaSonera's project methodology guideline based on IPMA's competence elements.

2. Catalogue your level of experience by completing a test.

3. Carry out a self assessment, define your strengths and identify shortcomings.

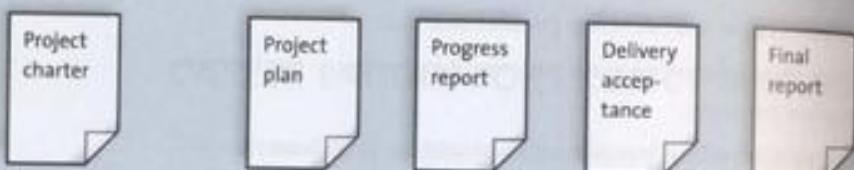
4. Define your goals and put together your action plan with your line manager.

Even smaller companies will find great value in setting up competence requirements for project managers and review the company's project operations in general.

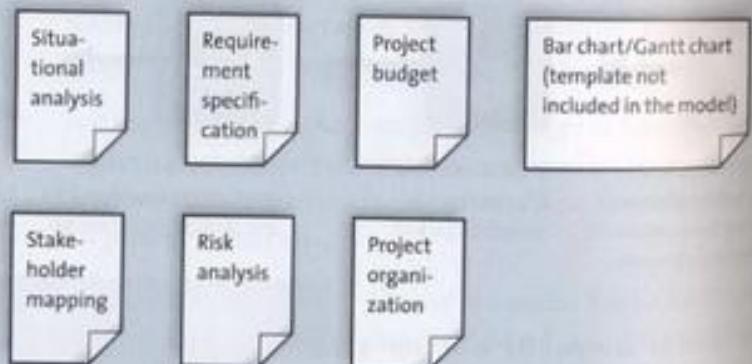
## A General Project Model



### Project documents



### Supporting documents



## Tollgates

Tollgate	Decisions	Documents
TG 1	Initiate project Define objective and goal. Timeframe and budget for the pre-study. Assign project manager.	Project charter Guideline – pre-study
TG 2	Start planning Approve pre-study. Priority of what is most important during execution. Timeframe and budget for the planning.	Guideline - planning Requirement specification
TG 3	Start execution Approve the project plan. Approve project budget. Staff project group.	Project plan Project budget
TG 4	Follow up Continue according to plan. Decide on and implement changes.	Progress report Earned value analysis Change decision
TG 5	Handover Approve delivery.	Requirement specification Delivery acceptance
TG 6	Close project Approve actual costs. Terminate the project group. Terminate the project.	Final report
TG 7	Evaluate business impact Approve the project.	Business case Project charter Final report

### Extra tollgate

TG X	Exit project Terminate the project Terminate the project group	Final report
------	--	--------------