Engineering Project Management

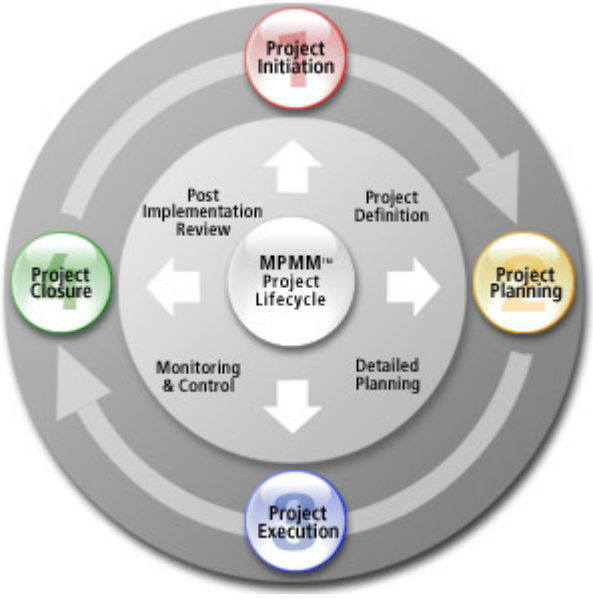
Project Management focuses on all facets of the steps needed to successfully manage a project - from planning and resources to budgeting and more.

Engineering Project Management provides a clear description of the aims of project management, based on best practice, and discusses the theory and practice in relation to multi-disciplinary engineering projects, both large and small, in the UK and overseas.

Managing Engineering and Technology is ideal for courses in Technology Management, Engineering Management, or Introduction to Engineering Technology. This text is also ideal forengineers, scientists, and other technologists interested in enhancing their management skills.

Managing Engineering and Technology is designed to teach engineers, scientists, and other technologists the basic management skills they will need to be effective throughout their careers.

Project Management Life Cycle



The MPMM™ Project Management Life Cycle comprises four phases

Initiation involves starting up the project, by documenting a business case, feasibility study, terms of reference, appointing the team and setting up a Project Office.

Planning involves setting out the roadmap for the project by creating the following plans: project plan, resource plan, financial plan, quality plan, acceptance plan and communications plan.

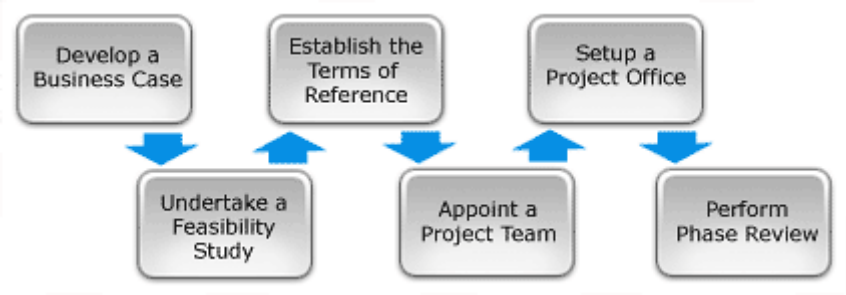
Execution involves building the deliverables and controlling the project delivery, scope, costs, quality, risks and issues.

Closure involves winding-down the project by releasing staff, handing over deliverables to the customer and completing a post implementation review.

A more detailed description of the MPMM Project Management Methodology and Life Cycle follows:

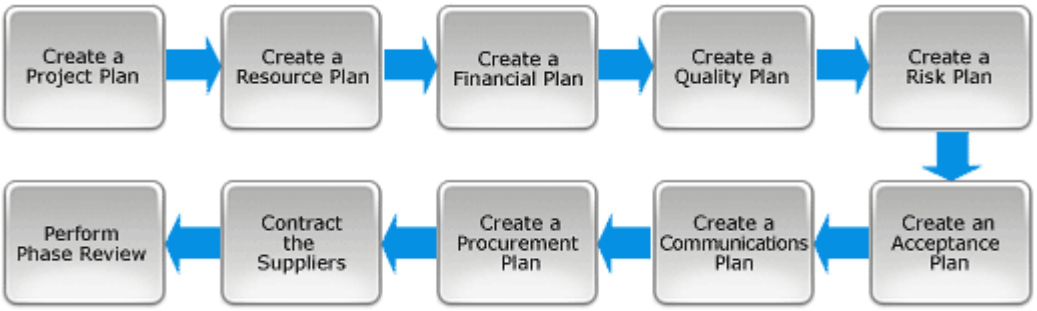
Project Initiation

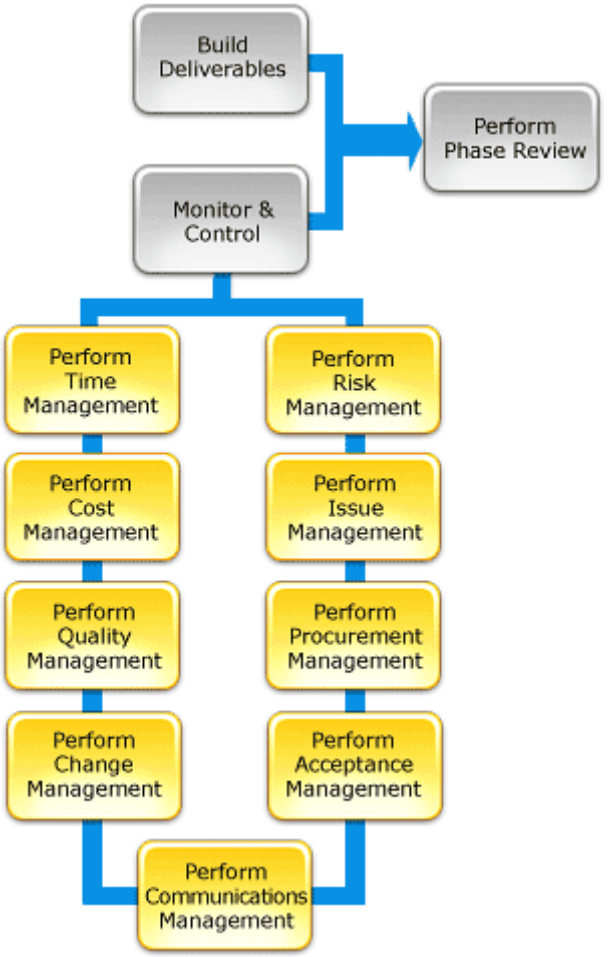
Project Initiation is the first phase in the Project Life Cycle and essentially involves starting up the project. You initiate a project by defining its purpose and scope, the justification for initiating it and the solution to be implemented. You will also need to recruit a suitably skilled project team, set up a Project Office and perform an end of Phase Review. The Project Initiation phase involves the following six key steps:



Project Planning

After defining the project and appointing the project team, you're ready to enter the detailed Project Planning phase. This involves creating a suite of planning documents to help guide the team throughout the project delivery. The Planning Phase involves completing the following 10 key steps:





Project Execution

With a clear definition of the project and a suite of detailed project plans, you are now ready to enter the Execution phase of the project.

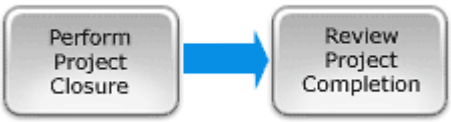
This is the phase in which the deliverables are physically built and presented to the customer for acceptance.

While each deliverable is being constructed, a suite of management *processes* are undertaken to monitor and control the deliverables being output by the project.

These processes include managing time, cost, quality, change, risks, issues, suppliers, customers and communication.

Once all the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure.

Project Closure



Project Closure involves releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources and communicating project closure to all stakeholders. The last remaining step is to undertake a Post Implementation Review to identify the level of project success and note any lessons learned for future projects.

Project Life Cycle - Project cycle management

The **Project Life Cycle** refers to a logical sequence of activities to accomplish the project's goals or objectives. Regardless of scope or complexity, any project goes through a series of stages during its life. There is first an Initiation or Birth phase, in which the outputs and critical success factors are defined, followed by a Planning phase, characterized by breaking down the project into smaller parts/tasks, an Execution phase, in which the project plan is executed, and lastly a Closure or Exit phase, that marks the completion of the project.

Project activities must be **grouped into phases** because by doing so, the project manager and the core team can efficiently plan and organize resources for each activity, and also objectively measure achievement of goals and justify their decisions to move ahead, correct, or terminate. It is of great importance to organize project phases into industry-specific project cycles. Why? Not only because each industry sector involves specific requirements, tasks, and procedures when it comes to projects, but also because different industry sectors have different needs for life cycle management methodology. And paying close attention to such details is the difference between doing things well and excelling as project managers.

Diverse project management tools and methodologies prevail in the different project cycle phases. Let's take a closer look at **what's important** in each one of these stages:

1) Initiation

In this first stage, the scope of the project is defined along with the approach to be taken to deliver the desired outputs. The project manager is appointed and in turn, he selects the team members based on their skills and experience. The most common tools or methodologies used

in the initiation stage are **Project Charter**, **Business Plan**, **Project Framework** (or Overview), Business Case Justification, and Milestones Reviews.

2) Planning

The second phase should include a detailed identification and **assignment of each task** until the end of the project. It should also include a **risk analysis** and a definition of a criteria for the successful completion of each deliverable. The governance process is defined, stake holders identified and reporting frequency and channels agreed. The most common tools or methodologies used in the planning stage are Business Plan and **Milestones Reviews**.

3) Execution and controlling

The most important issue in this phase is to ensure project activities are properly executed and controlled. During the **execution phase**, the planned solution is implemented to solve the problem specified in the project's requirements. In product and system development, a design resulting in a specific set of product requirements is created. This convergence is measured by prototypes, testing, and reviews. As the execution phase progresses, groups across the organization become more deeply involved in planning for the final testing, production, and support. The most common tools or methodologies used in the execution phase are an update of Risk Analysis and Score Cards, in addition to Business Plan .

4) Closure

In this last stage, the project manager must ensure that the project is brought to its **proper completion**. The closure phase is characterized by a written formal project review report containing the following components: a formal acceptance of the final product by the client, Weighted Critical Measurements (matching the initial requirements specified by the client with the final delivered product), rewarding the team, a list of lessons learned, releasing project resources, and a formal project closure notification to higher management. No special tool or methodology is needed during the closure phase

Project Execution and Control Phase

Project Execution and Control Phase follows the Project Planning Phase and ideally starts once the Project Plan has been approved and baselined. Project Execution4

ischaracterized by the actual work on the tasks planned and project Control involves the comparison of the actual performance with the planned performance and taking appropriate corrective action to get the desired output.

During this phase, **Project Team is responsible** for the following activities:

- Team Members execute the tasks as planned by the Project Manager.
- Project Manager is responsible for performance measurement which includes finding variances between planned and actual work, cost and schedule.
- Project manager is responsible for providing Project Status Report to all key stakeholders to provide visibility.
- All Project Key stakeholders are responsible for the review of the metrices and variances.
- All Project Key stakeholders are responsible for taking necessary action of the variances thus determined so as to complet the project within time and budget.

The **basic processes** of the Project Execution and Control can be:

- Project Plan Execution.
- Review of Metrics and Status Reports.
- Change Control Process. This defines the procedures to handle the changes that are introduced
- during Project Execution and Control.

The **facilitating processes** during Project Execution and Control can be:

- Quality Assurance and Quality Control.

- Performance Monitoring.
- Information Distribution or Status Reporting.
- Project Administration.
- Risk Monitoring and Control.
- Scope Control.
- Schedule and Cost Control.
- Contract Administration.

Project Execution and Control Phase has a direct correlation to project progress and stakeholder's expectations. Even the minor issues, if unnoticed, can cause major impact on cost, schedule and risk and deviate the project from the Project Plan, thus emphasizing the importance for the Project Execution and Control

Project Closure Phase

Project Closure Phase is the last phase of the Project Life Cycle. The commencement of the Project Closure Phase is determined by the completion of all Project Objectives and acceptance of the end product by the customer.

Project Closure includes the following **tasks**:

- Release of the resources, both staff and non-staff, and their redistribution and reallocation to other projects, if needed.
- Closure of any financial issues like labour, contract etc.
- Collection and Completion of All Project Records.
- Archiving of All Project Records.
- Documenting the Issues faced in the Project and their resolution. This helps other projects to plan for such type of issues in the Project Initiation Phase itself.
- Recording Lessons Learned and conducting a session with the Project Team on the same. This helps in the productivity improvement of the team and helps identify the dos and donts of the Project.
- Celebrate the Project Completion. Its party time folks!!!

The **basic process** of the Project Closure Phase involves:

- **Administrative Closure.** This is the process of preparation of closure documents and process deliverables. This includes the release and redistribution of the Project Resources.
- **Development of Project Post Implementation Evaluation Report.** It includes
  - Project Sign-Off
  - Staffing and Skills
  - Project Organizational Structure
  - Schedule Management
  - Cost Management

- Quality Management
- Configuration Management
- Customer Expectations Management
- Lessons Learned

Lessons Learned form an integral part of the Project Closure Phase. It helps answer the following typical question during Project Closure.

- Did the delivered product / solution meet the project requirements and objectives?
- Was the customer satisfied?
- Was Project Schedule Met?
- Was the Project completed within Budgeted Cost?
- Were the risks identified and mitigated?
- What could be done to improve the process?

The outputs from Project Closure Phase provides as a stepping stone to execute the next projects with much more efficiency and control

Project Teamwork

Although a good project plan generally leads to success, it's not enough. Everything that we do and the things that we do are all connected with people. We live because of people, we work with people, we work for people and we could say that we depend of people. That's why in a project the most important things is the team. So it's all about the people you work with.

The project team can be built up of human resources within one functional organization, or it can consist of members from many different functional organizations. A cross-functional team has members from multiple organizations and this is a recommended thing to do. **The most important tasks that the project team has are:**

- Understanding the work to be completed
- Planning out the assigned activities in more detail if needed
- Completing assigned work within the budget, timeline and quality expectations
- Informing the project manager of issues, scope changes, risk and quality concerns
- Proactively communicating status and managing expectations

But what is really a project team?! It's formed by some people that know very well what they are doing and that are headed by a project manager who is responsible for the successful outcome of the project. His job is very important because he must also form and educate team members and teach them how to do what is needed when they don't know.

The project team carry a huge responsibility upon it's shoulders: the success or the failure of the project. It's members are the one who practically execute the project, who give reports to the project manager, who make changes and corrections when needed. Each member of this team has his own task, which represents a part of the whole

project. So it's important that everyone respects what he must do so the final result is a good one

The Purpose of a Project Quality Plan

Quality can be defined as meeting the customer's expectations or exceeding the customer expectations achieved by way of deliverables and/or activities performed to produce those deliverables.

Project Quality Plan can be defined as a set of activities planned at the beginning of the project that helps achieve Quality in the Project being executed. The Purpose of the Project Quality Plan is to define these activities / tasks that intends to deliver products

while focussing on achieveing customer's quality expectations. These activities / tasks are defined on the basis of the quality standards set by the organization delivering the product.

Project Quality Plan identifies which Quality Standards are relevant to the project and determines how can they be satisfied. It includes the implementation of Quality Events (peer reviews, checklist execution) by using various Quality Materials (templates, standards, checklists) available within the organization.The holding of the Quality Event is termed as Quality Control. As an output of the various activities, Quality Metrics or Measurements are captured which assist in continuous improvement of Quality thus adding to the inventory of Lessons Learned. Quality Assurance deals in preparation of the Quality Plan and formation of organization wide standards.

Guidelines to write the Project Quality Plan

Project Quality Plan should be written with the objective to provide project management with easy access to quality requirements and should have ready availability of the procedures and standards thus mentioned.

The following list provides you the various Quality Elements that should be included in a detailed Project Quality Plan:

- **Management Responsibility.** Describes the quality responsibilities of all stakeholders.
- **Documented Quality Management System.** This refers to the existing Quality Procedures that have been standardized and used within the organization.
- **Design Control.** This specifies the procedures for Design Review, Sign-Off, Design Changes and Design Waivers of requirements.
- **Document Control.** This defines the process to control Project Documents at each Project Phase.
- **Purchasing.** This defines Quality Control and Quality Requirements for sub-contracting any part / whole part of the project.
- **Inspection Testing.** This details the plans for Acceptance Testing and Integration Testing.
- **Nonconformance.** This defines the procedures to handle any type of nonconformance work. The procedures include defining responsibilities, defining conditions and availability of required documentation in such cases.
- **Corrective Actions.** This describes the procedures for taking Corrective Actions for the problems encountered during project execution.

- **Quality Records.** This describes the procedures for maintaining the Quality Records (metrices, variance reports, executed checklists etc) during project execution as well as after the project completion.
- **Quality Audits.** An internal audit should be planned and implemented during each phase of the project.
- **Training.** This should specify any training requirements for the project team.

Evaluating your Project Quality Plan

For quality assurance to be effective, two things must be ensured:

- First, the Project Quality plan must be sufficient to achieve the required quality standards expected of the organization. In this regard the plan must not only be specific and detailed listing all quality requirements and standards, but also include all the steps taken to ensure that those requirements and standards are met.
- Secondly, quality assurance (i.e. final product testing) should be independent of the project itself (as well as the project manager). This comes down from the project management guidelines for effective quality assurance, and builds on a broad-based, organizational approach to standards-based product testing.

The development of a Project Quality Plan is a team process that depends as much on communicating information as it does on planning. The key objective is to create a cohesive dialog and subsequently develop awareness of potential quality issues assurance. Based on this awareness, project managers can prepare plans and actions to counter any weaknesses or deficiencies in the project execution, thus ensuring that all quality standards are met effectively

The Benefits of Effective Project Management Training

'Project Management Training' *refers to practical, real-world, hands-on experience for project managers in learning the principles and practices that lead to effective and successful project management.*

Learning Project management fundamentals is a necessary step in a project management curriculum, but team management is also a highly critical factor for successful project management.

Project management training has traditionally revolved around the benefits of a set framework of principles and **'best practices'** that are a part of **effective project management**. Modern management methodology moves beyond the classroom environment of set guidelines and promotes a climate of adaptability and the crucial habit of applying the lessons learnt from past experience. In either form, the value of such training cannot be underestimated, as investments in project training make measurable improvements to an organization's bottom line.

Either through hands-on experience on real projects or structured as course material to be delivered through a series of seminars and workshops, today's project-centric organizations are working hard to train a class of project managers who thrive on excellence, both in their own achievements and in the achievements of their teams. Simultaneously, **project management excellence** has become the new buzzword for efficiency experts that are being hired by organizations in an attempt to improve productivity while decreasing costs at the same time. The results-oriented approach of effective project management training makes it necessary for project managers to build upon the concepts of good project management and apply their knowledge into their projects. This in turn can form the basis of an effective rewards policy that values performance and consistency by project managers. Basing bonuses and promotions on

qualities and attributes that an organization is trying to ingrain in its management can only lead to more and more project managers applying the skills learned through training.

The conclusion is as evident as the results are promising. An in-house project management training program that allows for genuine feedback and a further refinement of the process, combined with a performance-based rewards policy, form a blueprint from which organizations can reap the benefits of effective project management.

Project Management Tools

Tools are the means that help managers and the team members successfully plan, manage and execute the different tasks involved in each project.

Given the wide range of project management tools available, the key to selecting the right one is understanding that different tools are needed along the different stages of a project life cycle.

During all phases of the project, Milestones Reviews and Business Plans take a leading role, whereas in the Initiation phase, Project Charter, Business Plan, Project Framework (or Overview), and Business Case Justification are essential.

In the Execution and Control phases, an update of Risk Analysis and Score Cards prevail. During Closure, no special tool is needed.

In this section you will find information on some of the latest and most commonly used project management tools, together with other resources that we think you might consider useful throughout the project lifecycle:

• Business Plan
• Milestones Check-list Scheduling Tools and Methodologies:
• Gantt • Pert • MS Project
• Business Case Justification
• Project Charter
• Project Framework or Overview
• Risk Analysis
• Score Cards
• Team Building
• Project Communication Plan
• Project Management Templates
• Project Management Software Packages

Business plan as a decision making tool for projects

As a professional of the 21st century, would you be surprised to know that, traditionally, **business plans** were not included in the typical project to-do list? Regardless of this unfortunate antecedent, experts in the field of project management who have practiced and taught this discipline for many years strongly recommend including a business plan when setting the basis for a newly assigned project.

they think that it might be detrimental not to include it as it might hurt the business by leading to non-optimal and often, **senseless constraints**. This is especially the case in highly fractionated and budgeted organizations where people often loose the 'big picture' on what resources to assign to what project and with what goal, thus keeping constraints totally out of proportion. But before we go any further, let us clarify what we understand for 'business plan'.

A business plan revolves around the strategic aspects of a project and is intended to allow the project manager and core team make intelligent and educated day-to-day decisions by helping organize and put in place a series of **resources commensurate with the objective to be achieved**. The business plan should not be confused with the 'project business plan', which in the project management field is often known as 'project framework'.

By the time you have finished writing your Business Plan you will have a total understanding of your business; its strengths and weaknesses, the environment it operates in, what could potentially go wrong, and what you can do to ensure your success

The project business plan is a guideline to who governs the project and how that governance is conducted, what the deliverables are, and what the key milestones are. Nevertheless, it fails to take into consideration the **strategic** and commercial aspects of the project itself, as critical to the project's success as the more 'hard' and operative technical aspects. After all, if a project doesn't generate profit or a pre-determined range of return on investment, what's the point of having it completed on time?

It is commonly accepted that when a person is responsible for a business plan, the deliverables may and probably will contain changes. The business plan is a **decision-making tool** that defines a strategy and promises a return on investment, not a set of financial figures. The financial figures are only the consequence of the strategic options or alternatives considered as part of the business plan. In this regard, there is not much difference between a project and a

new venture since both are expected to deliver a **return on investment**. The project manager is the person in charge of turning the steering wheel in such way that the money he has been trusted with will produce the targeted results, all of this with a strategic vision in mind.

Writing a business plan enables you to consider all aspects of your project

the expected results with good resource management takes a lot of strategic planning . That's exactly what a business plans facilitate. We would like to advocate the incorporation of business plans to all new projects since the advantages of doing so are countless. Just to name a few, business plans are closer to the business realities, profitability and strategy; business plans also permit to **compare the pros and cons**

of several options and choose the one that seems to be the more appropriate; business plans make it easier to make decisions and reach consensus, as people are more aware of the project's critical aspects and profitability expectations; business plans bridge the gap between strategy and execution – many projects without business plans feature two heads with shared responsibilities, one being in charge of the technical aspects of the project while the other is in charge of the strategic and commercial aspects. Evidence shows that dissociating the execution from the reality is not a good thing as it only leads to inefficiency; business plans foster a **forward-looking** rather than a rear mirror look-at-all-the-money-spent-to-date vision; business plans make it possible to measure the consequences of changes asked by the client, and offer a revised price in tune with the new request; business plans allow easy consolidation and comparison of a portfolio; business plans increase team motivation, as people can see the results of their decisions; business plans may be used to evaluate the consequences of the project risks and decide, appropriately, what preventive actions to take; and finally, and perhaps the most important benefit derived from business plans is that they help identify the profitability levers of a project.

The above are only some of the benefits of having a business plan in any new project, but good project managers know that there are many others, and that it is always a good idea to have a business plan. Too often a project's potential difficulties are underestimated upfront, and due to 'diluted' responsibilities, these difficulties are ignored from a business standpoint resulting in a 'budget variance' that makes the project more costly or longer than originally conceived. By forcing the money-spenders as well as the money-askers to become a **strategic-thinking** team that focuses on securing project profitability, business plans have become an outstanding tool to balance various alternatives and choosing the one that better adapts to the company's budget,

Milestones

In order to organise your time and work for the project you have, set up milestones and define a deliverable for each major milestone. They enable the progress of the project to be easier measured and controled.

A milestone is a sort of deadline inside of the project for a certain task. And as many important tasks or "steps to do" you have, as many milestones you should set. Checking one means that the task is done and you can move on to the next one. Like this you care sure that you don't skip anything
and that your total time is very well devided into pieces which are enough to finish the project in the right time.

Milestones keep projects on track and also provide conditional approvals that enable the management authority to approve the project to proceed with minor revisions noted. When you set milestones you can face the changes that appear when you least expect it because you take sthem step by step, milestone by milestone.

Milestones are also good when you have to devide the work for the team members. Like this you will know without having doubts who failed to do his job properly or who did it faster and very well. Milestones create the impresion that each one is on his own, with his small project to do, which represents only a part from the big project that you have to do. And like this they do their best to finish their task.

It's not hard at all to set up milestones. You simply devide the project into parts that must be done in order and you set up a deadline for each one of them. After doing this, comes the gardest part: the work for the project

Gantt Charts

The ability to communicate is a definitive prerequisite for **successful management** of a project. **Graphical displays** such as **gantt-charts** usually make the information easy to identify; and thus are the prime means for tracking cost, schedule and performance. Gantt-chart, being the most common type of display, is named after Henry Gantt, who first utilized this procedure in the early 1900s. The gantt-chart (or the bar chart) is a mean of displaying simple activities or events plotted against time. An activity represents the amount of work required to proceed from one point to another. Events are described as either the starting or ending point for either one or several activities. Gantt charts are most commonly used for exhibiting program progress or defining specific work required to accomplish an objective. They often include such items as listing of activities, activity duration, schedule dates, and progress-to-date. 16

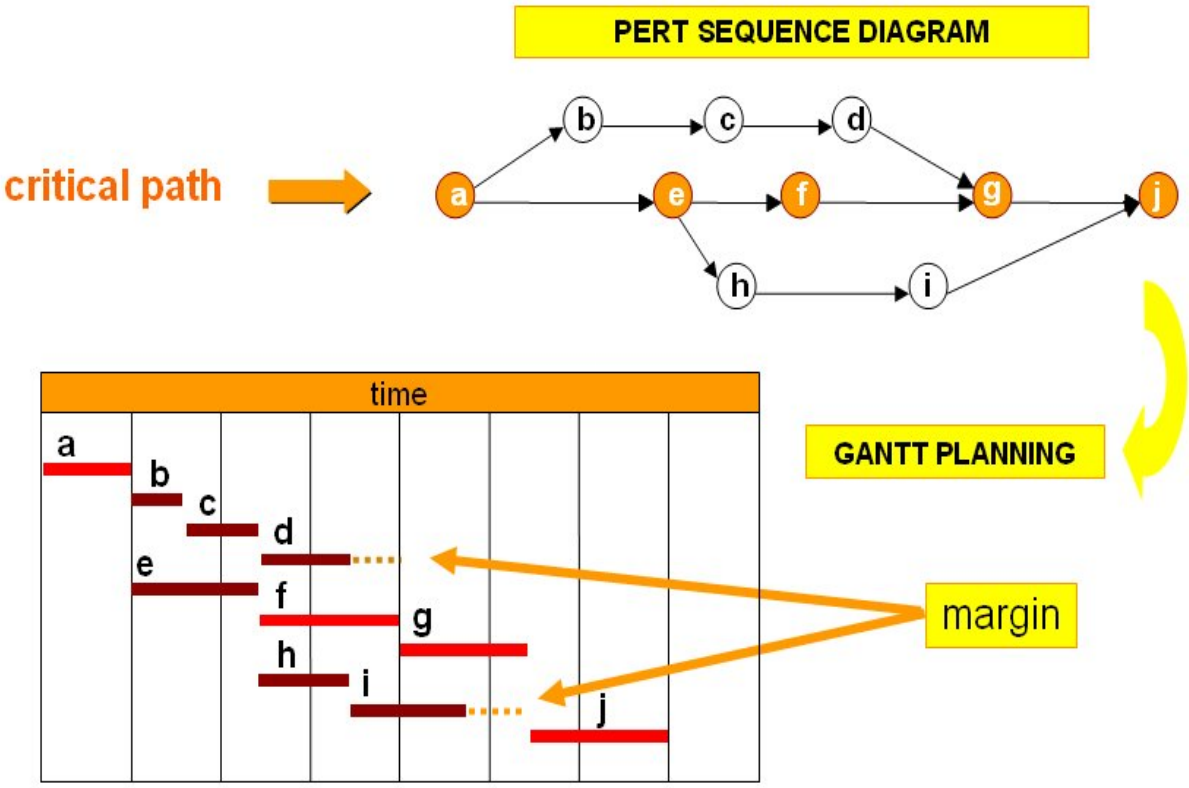
Gantt-charts are advantageous in that they are simple to understand and easy to changeThey are the least complex means of portraying progress (or lack of it) and can easily be expanded to identify specific elements that may be either behind or ahead of schedule. The benefits for **project management**, that gantt-charts can result in, include: **Cutting project cost** and reducing the time scale

Coordinating and expediting planning

Eliminating idle time

- Obtaining **better scheduling** and control for subcontractor activities
- Developing better troubleshooting procedures
- Cutting time for routine decisions, but allowing more time for decision making

Sample PERT and Gantt Chart



Why you should write a strong business case justification

A strong business case must be built very carefully because only like this it can lead to a good conclusion and it can reveal the risks or the success from it's end.

From the very beginning of a business case, you must know exactly what it's all about. This means you must calculate and perfectly understand it's costs, it's implications, it's benefits and risks. This means that, as enthusiastic as you can be, you must do your best to be objective and to accept the idea that even you can be wrong sometimes, and that even one of your ideas can lead to failure.

It's a good thing to dream that your business will grow larger and larger by night. But it's better to come up with an idea that can really lead to that. And good ideas always involve a comprehensive view into the benefits and risks of the project.

Risk Analysis

A good planning phase for a project includes many things like time analysis, assignments of the tasks etc. and among them it also includes a risk analysis which consists primarily of a collective brain storming involving all project team. It is recommended to be done after the plan has been elaborated. You can also conduct a technical feasibility analysis which is an easy-job for experienced people. They can detect most risks.

During the risk analysis you must not focus only on the technical risk because many times risks come up from places that you expect the less, like organization, team problems, partnership problems etc. Remember that everything that you do is connected to people, and people can be wrong sometimes..

The best way to begin a risk analysis is to start with the reward. Analyze this first and after that the goal of the project that can lead to the winning of the reward. And after you do all this, start thinking of the problems that can show up and keep you away from fulfilling your tasks.

If you want the answer to the following questions, which are essential for a good risk analysis, just download our Product Risk Assessment template.

- How can we make a more balanced presentation of the risks and rewards?
- What are the elements of a good risk management plan?
- What methods can we employ to identify, analyze, and measure risk early in a project and present these risk measurements in a form as readily understandable to senior management as a marketing forecast?
- How can technical risk be presented to a non-technical audience?
- And when a project goes forward with this more balanced understanding of the risk
- versus rewards, how can we control and mitigate these identified risks?

- What tools are available to help us in capturing project risks, presenting them for decision analysis, and controlling and mitigating these risks during the project's execution?
- What is a risk analysis and how do I conduct one?
- Are risk analyses just for safety-significant designs and processes?
- Are there any special techniques for risk analysis of software products?

Our Risk Management template will provide you a very good approach to specific risk factors such as employee relation

It typically results in a plan of action to avoid the risks or minimize their consequences. Establish a risk management process. Ensure that projects have an adequate level of risk planning. Anticipate risk events and provide mitigation strategies for those events. You must do this even for short and easy projects because problems can show up anywhere.

Every step of the way you must keep in mind that there are two types of risk that can affect your project: firstly, the risks that you know about, and secondly the risks that you are not aware of. And your task is to ensure that the risks you are of are much more than the ones that are not known. The key to manage risks is to build contingency plans for risks that you know about and to build enough time into your project schedule to mitigate risks that you do not know about.

What is a Balanced Scorecard?

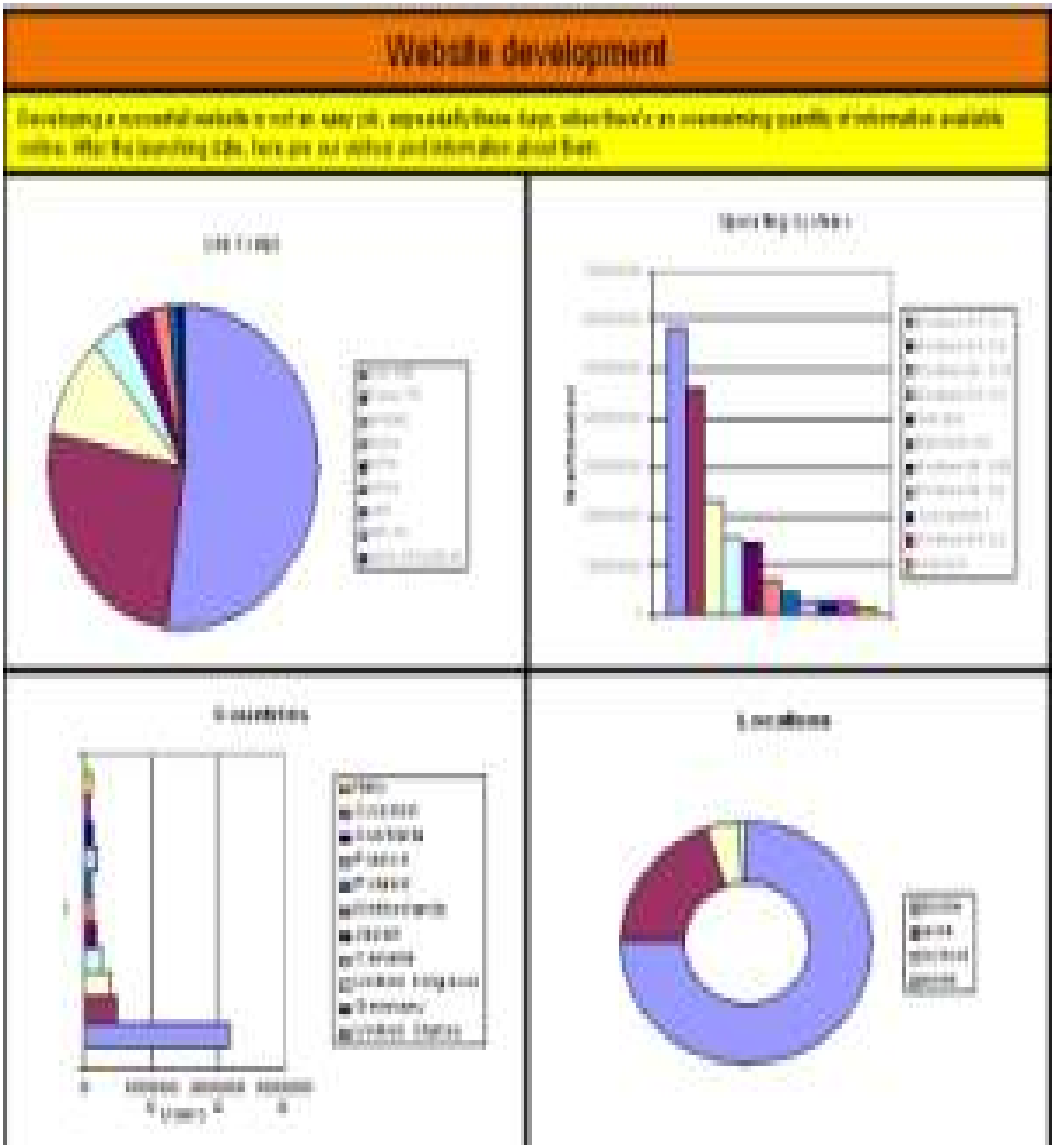
Implementing the balanced scorecard methodology in a project gives you quick access to important metrics - for example cost, expected return of investment (IRR) for the project, customer satisfaction, innovation... All these help you continously monitor the performance of a project.

The **Balanced Scorecard (BSC)** is a conceptual framework enabling an organization in clarifying its vision and strategy, thus effectively translating them into action. This performance management approach provides feedback around both the internal processes and external outcomes, essentially focusing on four **indicators**: **Customer Perspective, Internal-Business Processes, Learning and Growth** and **Financials**.

The concept of Balanced Scorecard was developed in the early 1990's by Robert S. Kaplan and David P. Norton. They describe this innovation as follows:

"The balanced scorecard retains traditional financial measures. But financial measures tell the story of **past events**, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to **create future value** through investment in customers, suppliers, employees, processes, technology, and innovation."

Sample Balanced Scorecard report made with Power Point(ppt)



There are currently about forty different companies offering Balanced Scorecard software. Some of the most established include ActiveStrategy, Cognos, Corda, Corvu, Dialog Strategy, Pilot Software... Many can be used for project management, but they are more designed for strategic planning and corporate use and they lack the flexibility needed in project management.

In most cases, we have found that Excel and Power Point are the easiest solution. Automati your balanced scorecard reports is easier done if you can access to the database that contains the relevant data.

Business indicators

Hence, the approach of Balance Scorecard is an effort to improve its processes, motivate and educate employees, and enhance the information systems, while monitoring the project'

progress toward the organization's strategic goals. If you want to buy a Balanced scorecard software package, choose one that allows collaborative work.

In terms of **Customer Satisfaction**, the approach analyzes the organization's ability to provide quality goods and services and their effective delivery, while the **financial perspective** of the Balanced Scorecard generally represents the clear long-range targets. Now in order to lead to the success of the above two mentioned perspectives, the internal business indicator provides data regarding the internal business results against its measures.

The fourth and the last major

perspective concerns with learning and growth, which aims to align all of the above toward an overall organization's success

Team Building and employee motivation techniques

One of the most important steps of a project is to carefully choose the team. This is not an easy job to do, because it requires a lot of objectivity and you must keep in mind the goal of the project and not the sympathy for certain persons. Before choosing the team you must think what kind of specialists you need exactly and this is the main thing you must consider when you choose the members: their specialty and your need for it.

Most of the times, having to choose a team means forgetting about sympathies and friendship and doing the right thing for the sake of the project. And because team building means more than just choosing a team, and also growing it and educating it, this also represents forgetting about yourself sometimes, especially when you're the Project Manager or the responsible person for the success of the project.

It's good to remember that team building means a lot of team coordination, a lot of suggestions and indications to give and a lot of questions to be asked. And this is something that takes place starting with the beginning, when you choose the people, and ending with the reach of the goal, when you finally take a break and celebrate.

Team building means talking, discussing, asking and answering, being ready for brainstorming or for working more than usual, listening and asking for suggestions, respecting and following the indications received, keeping the moral as high as possible and motivating the people when needed. All these are team works so, basically, team building doesn't regard only the project manager' tasks, but the whole team'

.

Selecting the Right Project Management Software Package

Throughout the stages of a project's lifecycle, diverse tasks or activities prevail in terms of relevance. Since a typical project usually involves a large number of tasks of varied nature, different types of software packages are needed along the way to help the

project manager and project team handle the multiple project tasks efficiently. In this article we will walk you through the most well-known categories of software packages for PM (project management) and we will give you some valuable tips on how to select a PM software package that is right for you.

How do I know what will work for me and what will not?

This seems to be a one million dollar question. Whenever you are considering purchasing a PM software package, there is always a problem you need to solve and the software is expected to be the solution to that problem. The first step in selecting the right PM software package, therefore, is knowing perfectly well what you need the software to do. This includes not only having a very clear vision of what the project is about and the relevance of each of its parts, but also determining what your expectations of the

software are. We cannot overstate the importance of having a clear idea of what you

expect the software package to solve or how you expect it to perform, because if you fail in this first step, frustration will follow – not to mention you will also have wasted time and money (probably a significant amount of money) on something that just was not what you needed.

So going to the basics, you should first know what type of problem you are trying to

solve and then choose the software package that better fits your particular PM needs. Are you looking to manage project tasks and monitoring project execution against the plan and schedule? Is it project scheduling that's bothering you? Or perhaps you need a tool to create a detailed business plan that will help you determine how much profit the project will generate? All these different sorts of PM problems have resulted in software manufacturers developing and launching to the market a myriad of PM packages. But again, since we want to keep it clear and simple, you should know that there are at least five PM problems that can be addressed with software or software packages:

1. **Task/ Time Record Management** - These packages allow individual team members to have specific tasks assigned to them, and each person is responsible for regularly reporting their tasks progress in the software package. Although there are some variations among the available products, the Tasks or Time Record modules are usually linked to other modules including Prospects, Contacts, Jobs, Calendar and Internal Forum (a place where team members can post an idea and get feed back from others). The top products in this PM software category are MS Outlook and Lotus Notes, though there are about 50-100 packages available in the market, some of which are web-based. Surprisingly, although the logic under these packages is easy to understand, performance is often far below management's expectations, except perhaps for call centers. One downside of this type of packages is that they have such a strong tendency to centralize information that they often result in project members turning into bureaucrats. These products entail such an enormous amount of paperwork (i.e. individuals are required to fill out a large number of forms and write a lot of reports) that project team members quickly become tedious about their work and they lose interest. Furthermore, since these reports generally go up high in the organizational hierarchy, people get discouraged to take any risks. As a consequence, individuals completely forget what is important and what is not in the project, they soon develop a very 'narrow' vision of what is going on, and they loose all initiative. This, in turn, might negatively affect overall productivity. However, if you need to track and manage the issues that emerge during your project, we suggest you use MS Outlook or the Lotus Notes packages. Now that you know the dangers or traps that you may fall into when acquiring this type of packages, you also know how to avoid them.

2. **Bill of Material (BOM) Management or Business Resource Planning** – BOM packages function as ‘material management’ software in the sense that they are used - particularly in engineering projects - to keep track of the various physical components of a project (i.e. parts and pieces). BOM programs are focused on specific parts (i.e. a car wheel) and the way these parts will be manufactured. In addition to the Manufacturing module, these packages feature related modules such as Supplier information, Quality and Testing specifications, etc. Enterprise Resource Planning or ERP belongs to this category, with well-known software packages such as SAP, JD Edwards, PeopleSoft, Oracle, and Great Plains. Originally, ERP packages were conceived to integrate and automate all facets of business operations, including planning, manufacturing, and sales, while more recent ERP software products include marketing, inventory control, order tracking, customer service, finance and even human resources. Most large companies have a corporate ERP in place and in these cases, more often than not, the project team is asked to use it. The major flaw in this type of software products is that since they are focused on production, they lack flexibility in other key phases of the project; i.e. the R&D phase. Also, they ask for too much detailed information at a very early stage of the project, when this data is simply not available to team members. Managing a complex and changing bill or materials with an ERP solution is usually a big handicap for any project team because these packages rarely perform well outside a routine supply and production chain. There is very little room for innovation. Nevertheless, these programs become very useful when the industrialization process starts. At that point, everything needs to be precise and concrete in order to optimize resources and follow the production plan. So in other words, we believe that the main attribute of a BOM management software package is flexibility. Keep that in mind when you select your BOM management software package. In this regard, some PM experts agree on that probably the best software available continues to be MS Excel. In fact, it is a very common practice among project team members to use a simple Excel spreadsheet during the development of the project, which is later entered into the corporate ERP system once the project is finished.

3. **Document Storing or Database** –

The purpose of this type of PM software products is to record all important project information, from client calls to supplier visits, team meeting reports and intermediate project results reports. One disadvantage is that they frequently store not only final but also intermediate reports and documentation. This way, the project office gets easily inundated with documents, with the additional problem that people tend not to be especially enthusiastic about 'properly indexing' documents – and even if they were, this would be a quite poor use of their time. The marketplace is packed with document storing software alternatives, however, before you make your decision, you should bear in mind that the most important factor your software should have is ease of document retrieval. There are currently two excellent solutions in the market, both free and available in Beta versions: Google Desktop Search and MSN Toolbar Suite with MSN Desktop Search. Both these tools basically allow you to find anything on your computer since they are desktop search applications which provide full text search over your email, computer files, chats, and the web pages you have viewed. By making your computer searchable, these applications place your information easily within your reach freeing you from the tedious task of manually organizing your files and emails. Even though you can purchase other document storing and retrieving solutions, in our opinion these two free tools feature significant advantages against traditional applications. Unlike traditional applications that force people to index their documents - either by entering keywords or by placing documents into specific sub-directories - Google and MSN Desktop Search applications place computer files into a shared directory and then let the crawler read and classify the documents during idle time. How is this done? Simpler than most of us would think: the crawler reads through each document and analyzes each word in it. It then creates an index of all the information on the computer. Finally, when a search is performed by the user, all documents containing the specific search word are extracted and shown into the screen, and a brief summary is created. These operations are performed radically faster when the person has written an abstract with a set of keywords for each document.

4. **Project-scheduling** –

These software packages, based on the Gantt-diagram method, are especially useful during the planning phase, which is critical to a project's success because that is when all the 'what-ifs' have to be considered and worked out. After the planning phase is over, project scheduling packages have also found to be

extremely convenient in allowing project management to maintain a global vision of the project. Probably the most famous product in this category is MS Project TM, which in our opinion is the best solution for small and medium sized projects. For larger projects, quite common in the construction or IT industries for example, MS Project has the limitation that it can only effectively manage a certain number of tasks, let's say 100-200 tasks maximum. Thus, if your project is small or medium in size you will probably want to get the MS Project package, but if you need to do project scheduling for a much larger project that will require you to schedule and track some 10,000 tasks, then this would not be an appropriate package for you. Other solutions especially designed for larger projects are available today, although only large corporations and projects with a considerable budget can afford them. One differentiating characteristic of this latter type of packages is that they try to integrate task management with project scheduling. By scheduling efficiently, it is possible to both reduce stress and maximize your project

team's performance. Some PM experts recommend to use MS-project during the planning phase, and later combine it with other PM tools such as MS Outlook, MS Excel

and Desktop Search applications.

5. **Business Plan and Financial Forecasting** - These packages were designed to help decision-makers determine how much money a project will yield, as well as the levers that will influence profitability. For example, they should be helpful in answering questions such as, is it better to invest in a more expensive machine and be able to produce parts at a lower cost, or invest less in machinery and produce a more costly part? Regarding this type of packages, and although product alternatives abound, MS

Excel is probably the best solution and the most widely used.
During our many years of PM practice throughout Europe and the USA, we have found a small number of software packages that have proved useful and efficient in their purposes but quite often, we have been disappointed by the misuse project teams today give to software packages and the negative effects that this misuse can cause. We must acknowledge that we are far from ‘ideal’ in terms of software packages. Even after

so many years of continuous research and hard work,

software manufacturers have only developed products based on certain criteria or problem specifications, which means that these solutions only work well when projects do not differ much from one another. Software manufacturers have failed to develop products that are able to modify its features and behaviors based on past experience; that is, software that learns. We are not the only ones that recognize this problem. Moreover, this is the reason some manufacturers have started integrating project modules in an attempt to produce more comprehensive packages that would be able to solve more of a team’s PM needs than other products alone. One interesting alternative you may want to check out is TeamSide’s Project Management Tool (link to this section), which is fully compatible with Microsoft Project TM and can even be

considered as its perfect complement.

Conclusion

Ideally, your chosen solution must achieve the goals you have established for it with a scarce but reasonable room for disruption in terms of implementation and integration. Given that none wants to make costly mistakes, you should make sure that the software you select will meet the needs of everybody involved in the project, and that it provides quality support for the PM process. As the buyer, you should put yourself in the users' shoes and weigh the products benefits against their limitations, and what the products can deliver against your specific preferences and needs. Although the best solution depends entirely on your particular circumstances, our final recommendation is that you evaluate your alternatives carefully, check out the different vendors, pay attention to how they respond to your questions and concerns when you contact them and the sorts of guarantees they offer, and ensure you do not select a product that will put your project team into a situation where they loose track of what is really important in the project. This will be the more costly mistake of all.

The benefits of a kick-off meeting

To thoroughly understand the role of the kick-off meeting on the success of a project, we must be clear about the purpose(s) of this first project meeting. A kick-off meeting has four basic functions:

a) **Publicly state the beginning of the project**;
b) **Outline the project goals as well as the individual roles and responsibilities of team members**;
c) **Clarify the expectations of all parties**;
d) **Create a commitment by all those who influence the project's outcome**.

In terms of length, the kick-off meeting may last from a few hours to 1-3 days, depending on the scope

and characteristics of each project. Who should attend the kick-off meeting? Well, at least the 'core team'
should be present, but quite often it also involves most of the team. The ideal number of attendees, however, should not exceed 15 people. Generally speaking, this is a gathering of the project team, executive management, stakeholders, and other parties who need to officially recognize the commencement of the project. Project managers know that the kick-off meeting can be understood as a perfect ice-breaker situation where all attendees also gain a common understanding of the project's objectives and priorities.

Although the format of a kick-off meeting varies depending on the size and complexity of each project, it usually consists of several sessions each one focused on a different key topic. For example, some common sessions are the following:

Business Plan In this session, the topics discussed mainly involve determining how much money is to be made from the project and what are the levers to make that money. It is important to use the business plan as a decision-making tool.

Project Charter or Project Framework This session includes determining what the project statement is (its scope, definition and objectives), and who are the stakeholders (the client, management committees, etc). The general schedule, budget and activities are also discussed. The project manager usually goes over the project charter, including the project background, description, milestones and timeline, etc, with the objective of aligning the project with the reality.

Team Charter This session obeys to the purpose of clarifying who the project manager and key project members are, and who does what on the team. Generally, the project manager introduces the organization chart along with the roles and responsibilities of each project team member. It is crucial to clearly explain what is expected of all the concerned parties, i.e. quality, plant, procurement, legal, controller, etc. Typically, the program quality manager is involved and the team decides on a number of key procedures, i.e. change control management.

Master Planning This is a reasonably high-level type of planning that usually does not comprise more than 50-100 tasks. It is not a detailed planning, but includes all the tasks that are necessary for the completion of the project, from the beginning until its closure.

Risk Analysis This session involves a through assessment of all the risks that the project team members might face in order to accomplish the project goals. It involves identifying those factors that could jeopardize the success of the project and develop

ways to overcome them, as well as a corrective or preventive action plan if needed.

Team building It is always a good idea that the kick-off meeting ends with some kind of team-building activity or exercise aimed at teaching some rules for efficient teamwork. This task is best handled by an experienced facilitator and is usually a combination of physical and mental agility with an emphasis on teamwork.

Some project management experts believe that in those cases in which the project team has no responsibility on profit, there is no point in having a **Business Plan** session. Given that the start of a project is an important event, notification of the kick-off meeting's occurrence should be formal and in writing. It is a common practice for one or more designated attendees to take notes during the meeting and then write a short document or 'minutes of meeting' with a summary of all topics and issues discussed during the meeting as well as the conclusions reached. This document should be distributed to all meeting participants.

When an 'industrialization' process is included in the project, often a second kick-off meeting is held. Also known as '**plant kick-off**', this meeting starts when the industrial project team begins to take possession of a project; that is, at what is called 'tool launch' - when the project team starts placing massive orders to suppliers in order to 'build the plant'. This concept is also applicable to IT projects, where a large number of orders is placed to purchase servers, peripherals and other large equipments.

Top ten time management skills

The secret to managing time successfully is being able to manage yourself, although we often think we don't waste a minute of our time in reality this is far from true and there are many ways which we can manage ourselves more efficiently which ultimately leads to more successful time management. In order to successfully manage time there are strategies which you can use to stay more in control and relieve stress which plays a big factor in successful time management.

1. Attempting to do too much - in today's busy world many people want things done yesterday and this only leads to rushing around and not doing a task properly, it also leads to mistakes and half-finished work with no real feeling of having accomplished anything with your time.
2. A lack of priorities - this is the single biggest cause of time wasting, in order to successfully manage time we have to know exactly what our priorities are for the day, by not prioritizing we spend too much time on the minor things and not enough time on the important ones.
3. Interruptions - we all get interruptions in our day, this could be someone dropping in and asking if you have a minute to spare, which usually turn into a half hour or more. Knowing how to successfully deal with interruptions in your daily life is essential to time management.
4. Procrastination - thinking about what you have to do instead of actually getting on and doing it is one of the biggest time wasters in your day, reduce the amount of time that you spend thinking and this leaves you more time for doing.
5. Learn to say "no" - many of us just cannot say the words "no" when asked if we mind doing something, this is usually out of fear of upsetting the other person, but if you are taking on the responsibilities of others then you are taking time away from your own workload or tasks and essentially robbing yourself of that precious time which leads to stressing you out.
6. Clutter - look around your desk or workspace, do you know where everything is? If you are asked for a file can you lay your hands on it or do you have to go rummaging to find it?, a cluttered desk or workspace is a time waster.
7. Set deadlines for yourself - work out a reasonable deadline for a particular project and make sure that you stick with the deadline.
8. Manage your e-mails and phone calls - where possible manage when you read your e-mails and take phone calls better, this was you are not continually breaking off to answer a call or reply to an e-mail. Set aside certain times when you check your e-mail and reply to them, the

same applies to phone calls, it is surprising how much time can be wasted throughout a day by stopping and starting a project or task.

9. Use an activity planner - setting your day out in a planner can help you save time, a planner will allow you to allocate tasks to time slots and this way you can plan your day out and maximize your time more efficiently.
10. Avoid multi-tasking - starting many different projects at the same time is not a very efficient way of managing time, try to complete one project before starting out on another, this gives you the satisfaction of seeing the project complete and knowing you have accomplished something with your time.

More information on time management skills:

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The Purpose of Concept Testing

on potentially successful products. It focuses on taking into account people's reaction to a basic idea of the product, helping in making decisions such as pass/fail or go/no go.

Concept testing is taken place before a product is marketed. Hence, while promising a high probability of **consumer acceptance**, the attempt minimizes the **research and development costs** as well as the marketing costs.

The process for concept testing often depends on the type of product being developed, however it can be typically summarized in the following manner:

- Define the **purpose** of the test
- Choose a survey population
- Choose a survey format
- Communicate the concept
- Measure **customer response**
- Inthe results
- Reflect on the results and the process

Concept testing addresses several purposes. It helps finalize the optimum market that the product should be introduced in. While selecting among alternative concepts, it confirms that the selected concept is most favorable. Concept testing also lays the foundation upon which **benchmarking** can be carried out in the future. The effort helps in introducing new ideas into the concept. It forecasts the demand and analyzes whether the product is actually ready to be launched.

Nonetheless, it is important to realize that the process of concept testing should be considered as a mechanism to **refine, develop** and **nurture** new ideas, thus increasing their chance to penetrate the market successfully

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