Community Capacity Building Project

Understanding Project Management Module

Prepared By: Prestige Business Consulting Services in Partnership with Mariner Resource Opportunities Network Inc. & the Community Capacity Building Committee.

Funded By: The Atlantic Canada Opportunities Agency, Department of Innovation, Trade, and Rural Development, & Canadian Rural Partnership.

Date: December 1, 2005

Table of Contents

Module Overview{tc "Module Overview"}

This module is intended to provide volunteers and staff of Not-For-Profit Agencies, municipal Governments, community groups, and others with a working knowledge of project management. The content will include; some useful tools, sample processes, exercises, case studies, management plans and project planning tips. Much of these materials are from prior writings with the core focus being derived from Alan Chapmen 2001- 04 as well as materials from "Project Management at a Glance" (George E. Parsons 1986-1991). Other material is derived from the "Project Management Body of Knowledge" (Project Management Institute 2005), "Project Management: A Systems Approach to Planning, Scheduling and Controlling" (Harold Kerzner. PH.D 1998, and "Harvard Business Essentials - Managing Projects Large and Small: The Fundamental Skills for Delivery on Budget and on Time" (Richard Luecke with Robert D. Austin 2004).

Using the Module {tc "Using the Module " \l 2}

As we move through the material, you will find that many of the topics clearly apply to your current project management challenges, while other materials may not have an immediate or obvious linkage. You must take the information provided, listen to what others are saying, and make it relevant to you, your projects, and your organization. Ask questions to build on the basic elements provided to make the course better fit your needs.

Note to Facilitators {tc "Note to Facilitators " \l 2}

There are three delivery options with different durations for the Understanding Project Management Module:

- 1 Day (Basic)
- 1 ½ Days (Intermediate)
- 2 Days (Advanced)

The more time allocated for the training, the more in depth the facilitator can enter in to the subject matter. Prior to delivery of the module, facilitators will determine the interests and requirements of the group as well as any known upcoming projects. They will then modify the module content and instructional methods used based on the identified needs of the group (as well as the duration specified, i.e. introduction, intermediate, or advanced). Typically, a facilitator will, vary the slides in the PowerPoint presentation, exercises used, and the time spent on various topics for each session they deliver. For each topic discussed, facilitators will reference the corresponding pages in the notes so participants can read further.

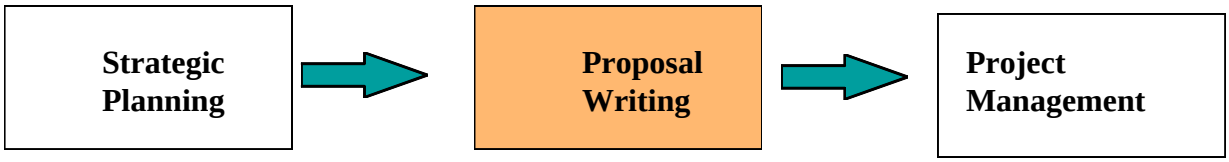
Context of Project Management in Regional Economic Development {tc "**Context of Project Management in Regional Economic Development** " \l 2**}**

Organizations involved in economic and community development activities face many of the same project management challenges as other organizations. However, they often face additional hurdles such as:

- initiatives are sometimes poorly defined or not well understood
- dependency on volunteer resources for project planning and project execution
- over commitment of key volunteers and staff
- lack of internal organizational resources such as space, staff, and funding
- organizations have little formal authority over other stakeholders
- implementing partners have varying levels of commitment to the project
- there can be competing or conflicting priorities
- dependency on government funding for implementation
- inflexible government funding criteria
- restrictive conditions on funding
- project teams often lack the knowledge, skills, or influence to effectively execute the initiative
- need for public accountability
- political interference

In addition, individuals and other groups often turn to economic and community development organizations for project management support because they lack the internal capacity to effectively manage initiatives. If development organizations do not have the ability to assist these groups there is a high risk that many good initiatives will fail. There is also a risk that the development organizations will be perceived as ineffective, resulting in an erosion of local support.

Linkages to Proposal Writing {tc "**Linkages to Proposal Writing** " \l 2**}**



Proposal writing is closely linked to project management. The process of applying for funding helps the organization determine the priority of its projects in relation to other projects. Most organizations recognize that there is a limit on the public funding available to a particular region, sector, or proponent. The process of applying for funding forces organizations to pursue the most important and most time sensitive projects first.

Organizations are often forced to carry out preliminary project planning in an effort to secure project funding. Specific information is often required by funding agencies and must be included in the funding proposal. Funding agencies will typically require an estimation of costs, a proposed time line, a description of the project outputs (i.e., specifications of wharf to be built, elements to be included in study, etc.), linkages to other planning, and expected benefits or outcomes. Compiling this information can be viewed as part of the project planning process.

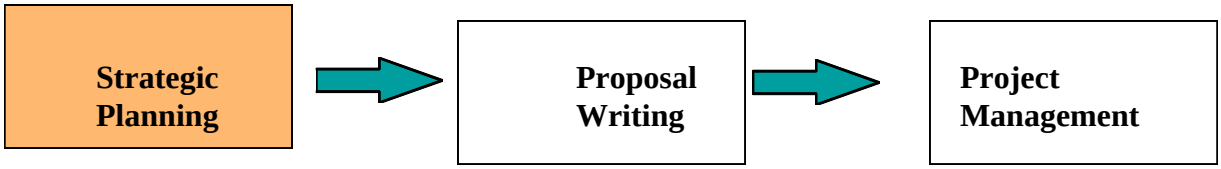
Once funding is approved, the funding proposal usually serves as the basis for additional planning which forms the project plan. Elements of the funding proposal will be broken down and better defined to provide a more complete picture of the project. Rough sketches will be replaced by technical drawings, schedules will be tightened, and cost headings will be broken down.

Project proposals also serve as the basis for "Letters of Offer" or "Funding Contracts." Failure to carry out work described in these legal documents can result in a cancellation of funding. It is very important that objectives and benefits specified in the proposal be achieved.

Example of Typical Proposal Cost Breakdown			
Funding Proposal		Project Plan	
Marketing Materials	$5,000	Website Improvements	$1,075
		Promotional Brochure	$725
		Newspaper Advertisements	$2,650
		Outdoor Signage	$550
		Marketing Subtotal	$5,000
Building Materials	$6,000	Lumber (2"x4"- 30 6ft pieces)	$900
		Siding	$3,700
		Roofing Tar 2 cans	$100
		Exterior Paint	$300
		Interior Paint	$200
		Nails (4lbs)	$25
		Counter Tops	$775
		Building Material Subtotal	$6,000
Total	**$11,000**	**Total**	**$11,000**

Proposals are often used to develop "Terms of Reference" for engaging external consultants. Poorly described objectives can result in an organization retaining the wrong consultant, unneeded costs and /or an incomplete study or report.

Linkages to Strategic Planning {tc "**Linkages to Strategic Planning** " \l 2}



Project Management can be seen as a component of the Strategic Planning Process. Good project management ensures the effective implementation of initiatives which advance the organization toward achieving its strategic goals. Project managers must be familiar with the strategic planning process and may have to review meeting minutes or talk to those involved in strategic planning to establish the context and intent of the project.

Many project management problems flow from implementing strategic plans. Strategic Planning Steps usually include:

1. Setting a Vision: A qualitative statement of community values and priorities is developed to provide longer term direction, common cause, and guide community actions
2. Determining Goals: Listing statements of long-term, desired outcomes which provide focus for the planning process within a sector or strategy
3. Outlining Objectives: Defining tangible outcomes in the form of qualitative and quantitative statements which serve as building blocks that support the goals
4. Setting Targets: Describing specific, measurable, time specified outcomes which serve as building blocks that support the objectives
5. Listing Initiatives: Developing specific activities/projects in support of targets

Strategic Plan Action Items usually are 2-3 sentences followed by a target completion date, the name of who is responsible, and hopefully a notional budget.

Example of Poorly Defined Action Item

"Action Item #1: The organization will develop a promotional brochure to provide to new members. The brochure will be ready by August 15/05. The Project Budget is $8,000."

This action item is typical of projects emanating from strategic planning meetings. Key information missing which prevents the project manager from successfully completing the product. Scope questions which need to be clarified include:

1. **Design: What size of brochure?**
2. **Style: How many folds (2,3 or 4)? Will it be color or black and white? Matt finish or gloss? Will it include photos?**

3. **Content: What did the steering committee or Board want included in the brochure? What is the thrust of the brochure?**
4. **Budget: Does the $8,000 include distribution? Does it include HST?**
5. **Execution: Will the brochure be created in-house or will it be out scorced? Who signs off on final proof prior to printing?**
6. **Procurement: Is there a pre-qualified list of suppliers?**
7. **Priority: Where does this project stand in relation to other initiatives? If there is a conflict due to limited resources, which project should be actioned?**
8. **Change: Fees are being reviewed in September. Should you wait to see if they change prior to printing?**

Strategy makers (usually the Board of Directors, high ranking staff, consultants, key stakeholders) define what business the organization is in and sets out a vision of the future. Some organizations formalize this vision in a vision or mission statement. This vision is broken down into high level goals or objectives. Organizations usually carry out a "gap analysis" to look at where the organization wants to be in the future and where it will be if no action is taken (status quo). Plans to close gaps are developed and organizations usually undertake a number of initiatives to bring about the desired results. Project management ensures initiatives are properly implemented.

If strategy makers do not undertake the strategic planning process properly, projects will not result in the desired benefits. Strategy makers should define organizational stakeholders, determine which stakeholders are most influencing the planning process, and determine how important it is to address the needs of the various stakeholders. If there is an imbalance between stakeholder influence and stakeholder importance the wrong objectives may be pursued and the wrong projects undertaken.

The structure of the organization should be a product of strategic planning and must be suited to the projects the organization implements. It would, for example, be difficult to manage a project with an inflexible deadline if the PM did not have the authority to authorize overtime. It would also be difficult to remain within the project budget when the organization's staff are not evaluated on cost control.

Project structure and resource allocation should be consistent with organizational strategy and structures must be flexible enough to respond to change. Projects are by definition somewhat unique. This means you are producing something new, utilizing new processes, technologies, etc. This means change. The Project Manager and members of the project team will require change management skills. Strategic planning must evaluate corporate culture to determine if the organization will be receptive to change. Strategic planners should ask themselves if the organization has the structure, culture and flexibility for its projects to succeed.

Project management is also closely linked to strategic planning as it is an important source of information feedback into the strategic planning process. The project environment is constantly changing and information on project performance needs to get to those that need it. The organization must be able to build on experience and capitalize on the learning of individuals to feed it back into the strategic process. It is not enough to have communication channels established. To be adaptable, the organization needs to ensure that those getting the information are willing to listen, admit mistakes and be proactive in addressing issues as they arise. Organizations must recognize the unexpected and report it. Significant project delays, cost overruns or adverse stakeholder reactions may cause the organization to rethink its strategy.

Introduction to Project Management{tc "Introduction to Project Management"}

What is Project Management?

A Cynical Viewpoint

"Project management is the art of creating the illusion that any outcome is the result of a series of predetermined, deliberate acts when, if fact, it was dumb luck."

Kerzner, Harold. PH.D
Project Management: A Systems Approach to Planning, Scheduling and Controlling

Appendix A "Frequently Asked Questions" provides definitions of project, program, project management and other related subjects. The key points in defining a project are:

1. It is temporary - has a beginning and end
2. It is unique - involves something new

Weekly payroll, for example, would not be considered a project because it is an ongoing process which is essentially the same every week. A job reclassification, research study, special event or construction project would be considered a project. All are, in at least one respect, different (position reclassified, research methods, event characteristics, water depth, etc) and all have an end date.
Project Management can be concerned with anything related to projects: people, products, services, materials, production, funding agreements, information technology and communications, facilities and equipment, storage, distribution, logistics, buildings and premises, staffing and management, administration, purchasing divestment plan, selling, marketing, human resources, training, culture, quality, health and safety, legal, technical and scientific, insurance requirements, and business development.

Why is Project Management Important? {tc "**Why is Project Management Important?** " \l 2**}**

Good project management skills are essential for the effective implementation of initiatives. It ensures projects are completed on time, on budget, to the required standards, with all the required elements.

What do all Projects have in Common? {tc "**What do all Projects have in Common?** " \l 2**}**

Many aspects of project management can be applied to projects of any size. Some of these aspects include:

1. All projects should have a name to assist in communication and record keeping.
2. The objectives of the project must be well defined. This provides a solid foundation for the project.
3. A good team is required. A mix of skills, knowledge, and abilities is required.
4. The project needs a budget.
5. The project needs a time line.
6. All projects require a plan. It can be high level but it must communicate what work is to be done, who will do it, who will be consulted, who is informed of project progress, etc.
7. Project progress must be tracked and corrective action taken as required.
8. Project records must be kept and organized so that information can be retrieved and used at a later late. "Lessons Learned" must also be noted so best practices can be used on future projects.

In short, all projects must be properly managed and these basic elements are required for all projects.

Project Management Skills {tc "**Project Management Skills** " \l 2**}**

The skills required to effectively manage a project are not entirely unique to project management. Many general management skills are very applicable to project management situations as they are to every day operations management. These skills include leadership, accounting, marketing, stress management, motivation, and others. Good general management skills are essential to effective project management.
In addition to general management skills, there are nine areas of project management skill areas which project managers and project teams should posses.

1. Project Scope Management: Defining and controlling what is and what is not part of the project.
2. Project Time Management: Ensuring the timely completion of the project.
3. Project Cost Management: Ensuring the project is completed within its approved budget.
4. Project Quality Management: Ensuring the project fulfills its purpose to the standards required.

5. Project Human Resource Management: Using people effectively and ensuring the project is properly staffed.
6. Project Communication Management: Ensuring people get accurate and timely information appropriate to their needs.
7. Project Risk Management: Effectively identifying, analyzing, and controlling risk.
8. Project Procurement Management: Acquiring the goods and services the project requires from outside sources in a timely and cost effective manner.
9. Project Integration Management: Co-ordination of the various aspects of the project in developing, executing, and controlling the project plan. Essentially, making sure the other project management skills mesh to effectively manage the project.

Understanding Project Constraints {tc "**Understanding Project Constraints** " \l 2**}**

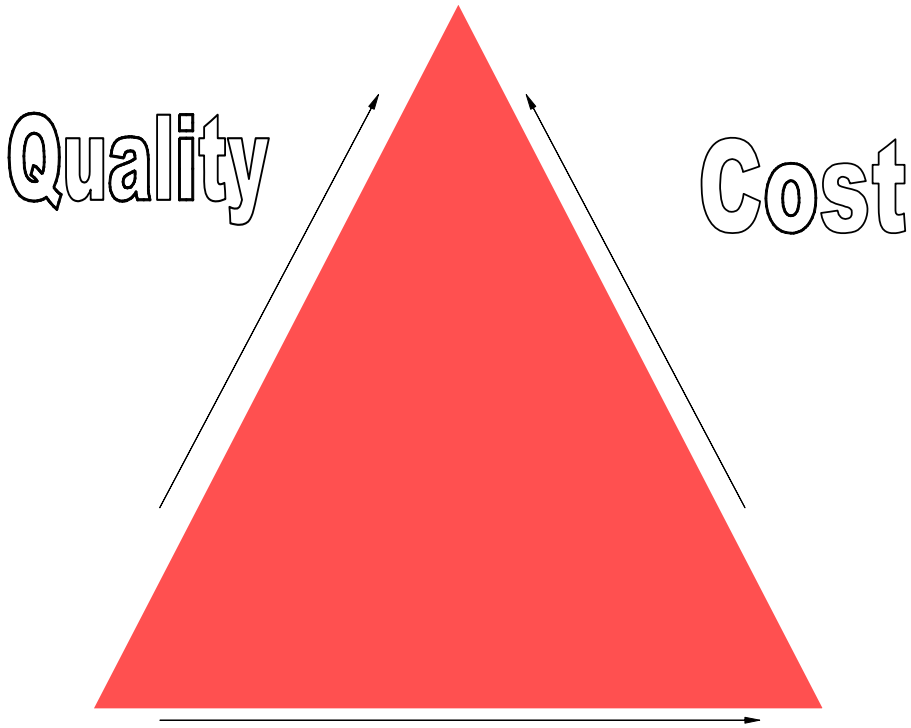
Projects are limited by time, cost and quality constraints. It is necessary that priorities be established among these prior to embarking on any project. These priorities will serve to guide decisions in planning, execution and controlling the project. It is important to recognize that improvement in any of these elements will be at the expense of the other elements. For example:

- Time: Reducing the duration of the project will increase cost (prevent effective resource leveling) or reduce quality (less design time).

- Cost: Reducing cost may require using less effective materials thus reducing quality. It might also require the project to level resources thus increasing time.

- Quality: Improving quality may require more design time or better materials (thus increased costs).

Trade-offs between elements are influenced by strategic considerations. It is helpful to think of time, cost and quality comprising a triangle (see below).



There are many other sources of constraints. Some common ones are:

- conditions set out in funding contracts
- building codes
- limited skilled HR
- organizational policies
- fixed schedule requirements other than those set up in the project plan (e.g., construction season, statutory holidays)
- environmental legislation
- plant capacity

You need to educate project stakeholders to the constraints a project will face. Failing to do this can lead to unrealistic expectations. In many cases a clear understanding of project constraints will result in a decision not to proceed with the project in the first place!

Defining Project Success {tc "**Defining Project Success** " \l 2**}**

When has the management of your project been successful? Project management is successful when the project objectives have been achieved. You must determine how success will be defined for your project. Some elements of a successful project are that it is completed:

- within allotted time
- within budgeted cost
- at the desired performance / specification level
- with acceptance by the customer
- when you can use the customer's name as a reference
- within minimum / mutually agreed to scope changes
- without disturbing the main workflow of the organization
- without changing corporate culture
- while utilizing the assigned resources effectively and efficiently
- safely
- when you are paid at the agreed to price
- without harming the environment
- within existing legal and regulatory environment
- subject to conditions of the contract.

The project's critical success factors must be identified. These are things which must happen or criteria which must be met for the project to be a success. The project must have the resources required to successfully address all critical success factors.

Why Projects Fail {tc "**Why Projects Fail** " \l 2**}**

Unfortunately most projects fail. As project manager, you must understand the reasons for project failure and address these to the extent possible when planning, executing, and controlling the project. Some common reasons for project failure include:

- Project goals are not well defined or understood. This can lead to the ineffective allocation of resources, confusion, conflict, and stress.
- Project team lacks knowledge, skills, or organizational influence (connections / power) to effectively execute the project.
- Project sponsor (eg. steering committee or executive director) lacks authority or commitment to advance project interests. The project sponsor should have the authority to define the project scope, commit resources, remove organizational road block, and communicate directly with senior management.
- Turf wars with other organizations or with other project teams.
- Competition for resources. For example, many projects have lost key people when they were needed elsewhere in the organization.

- Resistance from those who will be adversely impacted by the outcomes of the project. People resist change and projects often require change. For example, some stakeholders

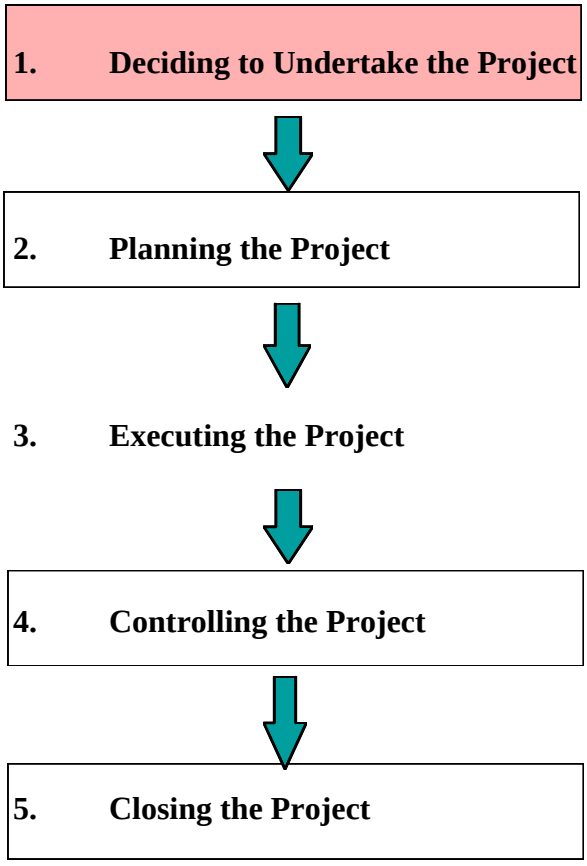
may not support an IT initiative because they are familiar with the existing way data is managed.

- Failure to align project goals with those of team members. Sometimes team members may not see any personal benefit from the project.

The Project Life-Cycle{tc "The Project Life-Cycle"}

Projects have a life cycle which they pass though from beginning to end. The description of the cycle can vary based on the type of project type but all projects pass through five distinct stages:

Deciding to undertake the Project {tc "**Deciding to undertake the Project** " \l 2**}**



Sometimes referred to as the **initiation stage**, it is at this point where the organization commits to begin planning the project. The rationale for undertaking a particular project can come from many sources:

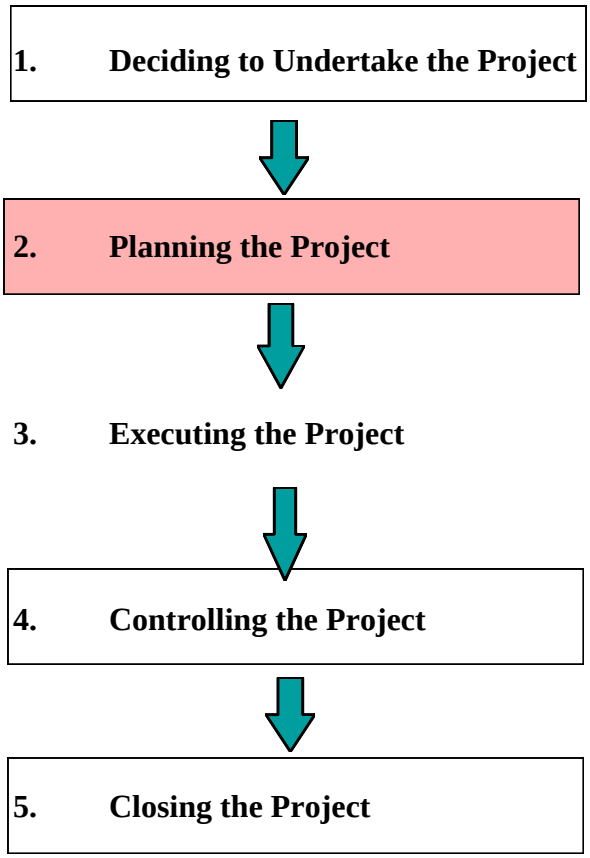
- An action item flowing from the organization's strategic planning
- A decision by the Board of Directors
- A new need.

- A new opportunity such as new funding program

For some projects, an initial feasibility review is completed at this stage. If the outcome is negative, the project is shelved before detailed planning is undertaken. Organizations frequently decide at this stage not to pursue the project. There are many reasons for this including:

- The project in not consistent with the organization's strategic focus
- Resource limitations (time, people, funds) which would make successful completion of the project unlikely
- There are many other potential projects which are more important than the project being considered.
- The project is not economically feasible.

Planning the Project {tc "**Planning the Project** " \l 2**}**



There are many elements to planning a project; defining scope, developing schedule, budgeting, risk planning, etc. You must prepare a written plan which outlines the various stages and activities of the project. Most plans are expressed in chronological order. Planners usually start

with the desired project outcomes and determine, at a high level, the characteristics of the outcome of the major elements of the project which will be required to achieve these outcomes. Major elements are divided and broken down into smaller pieces which lend themselves to scheduling and costing (also known as decomposition). It identifies all the things that must be planned and accomplished.

There are many means of determining the required elements of the project. Reviewing previous planning documentation such as the funding proposal, strategic plan, terms of reference, and meeting action items helps to focus the process. Brainstorming (simply noting ideas and points at random) is a very powerful tool for identifying important points, elements, and issues relating to the project. This can be followed by force field analysis to identify potential constraints to address as well as favorable factors to capitalize on. For complex projects where your organization lacks experience with specific project issues, you should involve others in the brainstorming process. This could include building suppliers, contractors, subject matter experts, community partners, representatives from the academic community, government officials, people from other regions who tried something similar, users of the project output, or other stakeholders.

You must establish the relationships and the linkages between project issues. You must then define the scope of the project, break large elements into smaller more manageable pieces, sequence and cost these pieces, assign durations to activities, and develop the project schedule and cash flow.

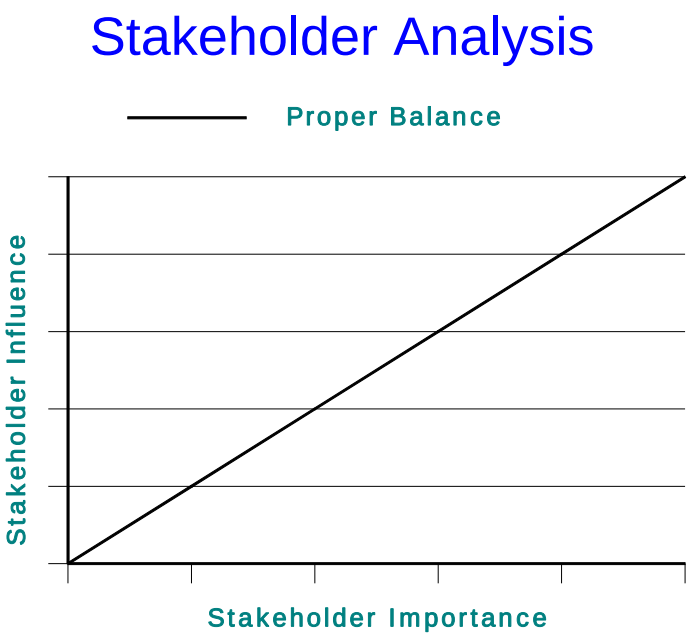
Effective Stakeholder Engagement **{**tc "*Effective Stakeholder Engagement* " \l 3**}**

Effective stakeholder management is critical to project success! When identifying project stakeholders, consider who contributes resources to the project, who is impacted by the project and / or its outcomes, and who will benefit from the final product of the project. Most organizations have horror stories of good projects that failed because stakeholder buy in was not achieved or where a project did not produce the desired result because key people were not consulted.
Example of Poor Stakeholder Engagement: Too narrowly defining who project stakeholders are.

The Blunden Cove Fisherman's Committee in partnership with the local development association construct a new wharf in the community. The new wharf will accommodate the existing small boat fishermen but will be larger than the old wharf to accommodate visiting pleasure craft and permit the local saw mill to ship wood by barge. When the project is 80% completed the fishermen's committee and RDA realize they require significantly more funding than forecast because they did not include the cost of water and electrical hook-ups which the pleasure craft market requires (the result of failing to include all end users in the planning of the project).

Later, when the project is completed, there are complaints from a concerned parents committee that the wood lay down area is too close to the local elementary school. The Town Council

reacts and restricts the use of the lay down area to after 3:00 pm. Another location not far away would have addressed this problem.



Project Stakeholders include, but are not limited to:

- The Project Manager
- The Project Team
- Project Steering Committee
- Project Sponsor (The individual who directed you to undertake the project)
- Board Members
- Customers
- End Users
- Other Community Groups
- Area Businesses
- Employees
- Unions
- Government Funding Agencies such as Human Resources and Skills Development Canada, the Atlantic Canada Opportunities Agency, Heritage Canada, etc.
- Interest Groups
- Suppliers
- Shareholders
- Commercial Lenders (Banks, Trusts, Credit Unions)
- Consumers
- Municipalities
- Department of Innovation, Trade and Rural Development
- Provincial Line Departments (Tourism, Fisheries, Agriculture, etc)

After stakeholders have been identified, it is important to analyze how important they are to the project compared to how much influence they are wielding over the projects objectives and planning. It is important that there not be a significant imbalance or the project may not achieve its intended objectives. Essentially the more important the stakeholder is to the project, the more influence they should have. This is important for addressing stakeholder conflicts. Stakeholders can be plotted on an influence / importance matrix. They should all fall very close to the diagonal line. Stakeholders falling in the upper left or lower right corners reveals an imbalance which must be addressed.

Project Team Development **{**tc "*Project Team Development* " \l 3**}**

Another important part of the planning stage is picking your team. Most organizations such as Zone Boards take great care to identify partners to assist in planning and implementing projects. In some cases, project team members, implementing partners, or steering committee members may be imposed on the project by the agencies providing the project funding. Regardless, selecting and gaining commitment from the best team you can. Typical team members would include:

- Staff Members
- Board Members
- Consultants with specialized expertise
- Contractors
- Customers
- Government Officials
- Special Interest Groups

Most teams will be comprised of people within the organization staff and/or board members. It is important to remember that your project is usually of secondary importance to the organization's core activities. In essence, "the show must go on!" You need to balance the attention and effort invested in the project with the need to manage your organizations everyday operations. It is sometimes easy to lose sight of this point. Consequences could be severe. For example, a zone board completes a major project which accomplishes all its objectives and does so on time and on budget. While completing the project the board loses sight of its annual performance report. As a result, the boards funding is delayed eight weeks and they are forced to temporarily lay off two staff. Was the project a success?

Agencies partnering in the project will often be reluctant to part with good staff! It is important to develop good working relationships with all partners while, providing recognition and credit to the organizations and individuals who help make the project a success. If you are unable to attract the team members needed to ensure project success you must notify your project sponsor, steering committee, or board to seek their assistance in obtaining the human resources needed to complete the project successfully.

In selecting a project team you should try to obtain a balance of skills and experience. A Project Team Skills Matrix may be a useful to assist in team selection (See Appendix B). Typical spills sought include:

- management skills such as motivation, planning and resource allocation
- technical skills such as construction, IT, or interpretive design
- administrative skills such as payroll, record management and routine correspondence
- interpersonal skills
- problem solving skills
- knowledge of the organization
- experience with similar projects

Generally you should try to establish your team as soon as possible. Identifying and appointing one or two team members to assist with developing the projects terms of reference or project charter will greatly enhance the potential for project success. Appointing the team early builds their commitment and ownership of the project.

While it is very beneficial to have the project team in place early, there is a risk in acting too quickly. It is important that you take the time to think through the types of people and skills you desire. If not, you run the risk of choosing the wrong people.

You should also verify the suitability of potential team members before inviting them to join the project team. Before inviting people to join your project team ask:

- Are they as good as they say they are? Check with others who have worked with them.
- Do their skills match the project requirements.
- Will they be available for the duration of the project? Determine if they have upcoming assignments or other commitments which will take them away from the project.
- Do they have the time required to commit? Talk to them to determine what their existing work level is.
- Are they committed to the project concept? If the person does not believe in the project you are not likely to get 100% from them.
- Do they clearly understand what the project is and what is required of them? They may think they are signing up for something different. This may impact the effort they expend or cause them to leave mid project.
- Do they get along with other potential team members? There may be personality conflicts which prevent the team from functioning effectively.

Don't assume that teams consist of only paid staff and official project team members. Some of the most valuable team members are informal advisors, mentors, helpers, volunteers who want nothing other than to be involved and a few words of appreciation.

External Team Member Exercise

Identify **five** individuals from outside your organization who have been on one of your project teams or who you plan to involve in a future project.

You should also ensure that you do not invite so many people onto the project team that it becomes unwieldy *"A team should have just enough people to do the job and no more."*[1]

[1]Richard Luecke, Harvard Business Essentials "Managing Projects Large and Small: The Fundamental Skills for Delivery on Budget and on Time"

Developing a Project Charter **{**tc "*Developing a Project Charter* " \l 3**}**

A project charter is a document developed by those managing the project which identifies and helps define a project. It is an acknowlegement within the organization that the project exists. It is often used as the very first phase of developing a project plan It should state:

- what the outcome of the project is expected to be
- why the project was undertaken
- it may or may not name the project manager.
- project strategy (who will be involved / consulted)

The Project Charter must be flexible. It must suit the requirements of the organization and requirements of the project. The charter is a living document and changes as new information comes to light and as the project passes through its life cycle. A sample project Charter is included in Appendix C.

Defining Project Scope **{**tc "*Defining Project Scope* " \l 3**}**

Project Scope is all work required to complete the project and **only** that work. It is usually described in a written project scope statement. The format of the statement is flexible and can be tailored depending on the nature of the project. This document will:

- help guide project decisions
- provide a means to evaluate project success.
- provide all stakeholders with a common understanding of the scope of the project (what the project is)
- provide all stakeholders with a common understanding of what is not included within the scope of the project (what the project is not)

A scope statement should contain:

- the justification for the project (Why)
- the expected project product / outcome (What)
- project deliverables (the major pieces of the product)
- project objectives (quantifiable criteria which must be satisfied for the project to be a success.

Once the scope of the project has been described in these terms, major components can be examined and broken down into smaller pieces which are easier to describe and understand. This is called the project “work breakdown structure.” It is a KEY element of project management. You MUST understand it!

Sometimes referred to as “decomposition,” developing a work breakdown structure is a process of deconstructing major project deliverables into smaller, easier to manage components. These

components are further broken down until they contain sufficient detail to allow for proper planning. Those components which have been defined / broken down as far as the need to be are called Work Packages.

Example:

Making a cup of tea could be broken into: 1. boil kettle 2. put tea bag in cup 3. Pour boiling water into cup.

"Boil kettle"could be further broken down into 1. put water in kettle & 2. plug in kettle

The WBS helps the project team better understand project scope and provides the basis for planning the project. Scheduling and cost planning will flow from the WBS

1. Making Tea
    - 1.1 Boil Kettle
        - 1.1.1 Put water in kettle
        - 1.1.2 Plug in kettle
    - 1.2 Put tea bag in cup
    - 1.3 Pour boiling water into cup

Breaking down components of a project helps the project team to more fully understand what the project is and what it is and what it is not. Brainstorming is often useful for identifying major project elements. For example, if you are organizing a regional planning session you might brainstorm and come up with major elements such as conference promotion, agenda content, event logistics, and gathering participant feedback, as major components of the project. You can then breakdown the major components to paint a truer picture of what you need to do and what you are not responsible for. (See below).

Event Logistics (Major Element #3)	
Work Packages	**Elements Not Included**

• Booking of meeting room and breakout rooms • Setting meeting room chairs • Setting up meeting room audio system • Setting up meeting room PowerPoint system • Organizing tables, pen, paper, flip charts, markers, etc for break out rooms. • Organizing nutrition breaks • Distributing conference kits. • Removing all organizational materials after the conference ends	• Arranging hotel rooms for participants • Arranging Lunch • Preparing presentations (responsibility of facilitators • Coordinating transportation for facilitators or participants

"Work breakdown structure is a deliverable-oriented grouping of project elements that organizes and defines the total scope of the project: work not in the WBS is outside the scope of the project."

Project Management Institute

Project Schedule **{**tc "*Project Schedule* " \l 3**}**

Many projects do not finish on time and it is important that time lines be realistic. Setting a schedule which is over-ambitious will only de-motivate your team. You should plan for time overruns and determine how you will deal with them. Build in some "slippage" or extra time into each phase of the project to address delays. Err on the side of caution where you can. Otherwise you'll be making a rod for your own back. If your deadline if fixed, you must plan and strive to complete it earlier.

Steps in the scheduling process usually include:

- Defining Activities
- Sequencing Activities
- Assigning Activity Durations
- Identifying the start and finish windows for each activity
- Identifying activities with no flexibility (cannot be delayed).

Complex projects will have a number of activities running in parallel. Other parts of the project can not start until certain pieces of the project are finished. These are known as "dependencies." For example, you can not start framing the building until the foundation is complete. Some tasks

can appear small and insignificant but, in fact, they may be critical in enabling larger activities to proceed. For example, the application for a building permit is simple and inexpensive, however, it must be handled prior to construction.

To plan and manage larger complex projects with various parallel and dependent activities you will need to put together a 'Critical Path Analysis' (CPA). This can be done with an Excel spreadsheet, project management software, or manually using precedence diagraming. CPA is a powerful tool for understanding the linkages between various project activities. It will also identify tasks which have no flexibility. These are called critical path activities. Delaying any of these activities delays the entire project.

Several types of precedence diagraming are used for projects. A Gantt chart is a useful way of showing blocks of activities over time. It can also be used to assist with managing project costs.

In addition to the Critical Path method which is based on the Work Breakdown Structure (breaking activities down into pieces which can be defined in terms of duration) there are several other tools for estimating project duration such as:

1. Analogous Estimating: (Top-down estimating). A method of defining activity duration by using the actual duration of a similar activity. Analogous estimating works best when:

    - Those estimating estimates are experienced
    - The activity duration is based on a comparison which is very similar

2. Simulations: Usually computer based. A model is produced and assumptions are inputted. A distribution of probable results are then produced on which estimates can be based.

3. National / Company Standards: Some sectors and large firms have a catalogue of activities with durations listed. For example, a company might have a list of how long certain welding activities will take to assist with scheduling.

4. Parametric Modeling: Estimating duration using two variables and rule of thumb formula’s. For example, it may take the Grand Concourse Authority an average of one week to build a kilometer of walkway. Using parametric modeling five kilometers will take five weeks.

Financial Planning /Project Budget

For projects involving funding you'll need a spreadsheet to plan and report actual expenditure. Use Excel or similar software to assist in this function. Most groups and organization may have basic knowledge of putting together a financial management plan, but in the event that this skill and experience is not readily available with your organization, contact your Zone Board for assistance. Most if not all REDB's have this resource.

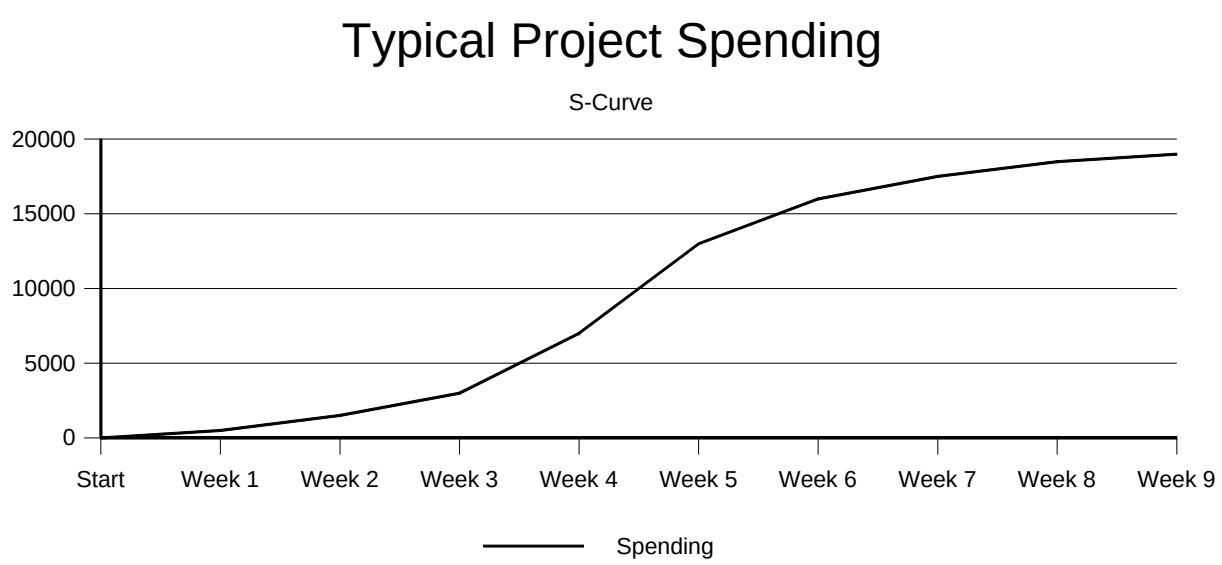
Financial Management is a key function of project management, and if you can't manage the financial processes yourself contact your Zone Board (REDB). The spreadsheet must enable you to plan, administer and report the detailed finances of your project. Create a cost line for main expenditure activity, and break this down into individual elements. Projects develop problems when team members get dissatisfied; rest assured, non- or late-payment is a primary cause of dissatisfaction. Remember to set some budget aside for 'contingencies' - you will need it

There are three stages to cost planning which will enhance your understanding of the project cost and improve the accuracy of cost projections.

1. Resource Planning: Review WBS and scope statement to determine what resources are required.
2. Cost Estimating: Determining resource costs such as labour rates, material costs, equipment rental, etc.

PROBLEM PAGE

Project Budget for 6 Week Project							
	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Total**
Labour	$2,000	$3,000	$5,000	$8,000	$5,000	$2,000	$25,000
Materials	$4,000	$8,000	$10,000	$10,000	$10,000	$3,000	$45,000
Equipment Rental	$3,000	$6,000	$6,000	$6,000	$6,000	$3,000	$30,000
Total							**$100,000**
Weekly Total	$9,000	$17,000	$21,000	$24,000	$21,000	$8,000	
Cumulative Total	$9,000	$26,000	$47,000	$71,000	$92,000	100000	



Risk Planning **{**tc "*Risk Planning* " \l 3**}**

When planning a project you must systematically identify and consider project risks. Risks can be grouped into two categories:

1. Internal Project Risks: These are risks to the project which are controllable to some extent by the project manager. Internal risks could include a key staff member leaving the project or the project falling behind schedule.

2. External Risks: Those risks emanating from outside the project. The project manager has no control over external risks. External risks could include unrelated protests which may block access to your site, exceptionally bad weather which delays construction, or a ferry breakdown that prevents materials from arriving on schedule.

After risks have been identified they must be evaluated or quantified to determine how likely it is the risk event will happen and what impact it would have on the project. For example, a delivery truck arriving late may be a common occurrence but the actual impact on the project may not be significant. A workman falling off a roof may be far less likely but have a devastating impact on the project.

Effective risk planning requires that you understand the risk tolerances of the project stakeholders. Based on these tolerances, project managers will attempt to address risks in one of four ways (or combination thereof). For the purposes of illustration, we can use the risk example of a fall injury occurring during museum repairs.

1. Avoidance: This is the outright eliminating of the risk. This is accomplished by changing project scope to avoid the risk. In this case, the risk of a fall injury could be eliminated from the project by deferring roof repairs to a later date.

2. Mitigation: Lessening the likelihood of occurrence or reducing the impact if it were to occur. This often involves the use of new processes, standards, or equipment. To reduce the risk of a fall injury, the project manager might insist that employees receive “Working at Heights’ training and be required to use harnesses.

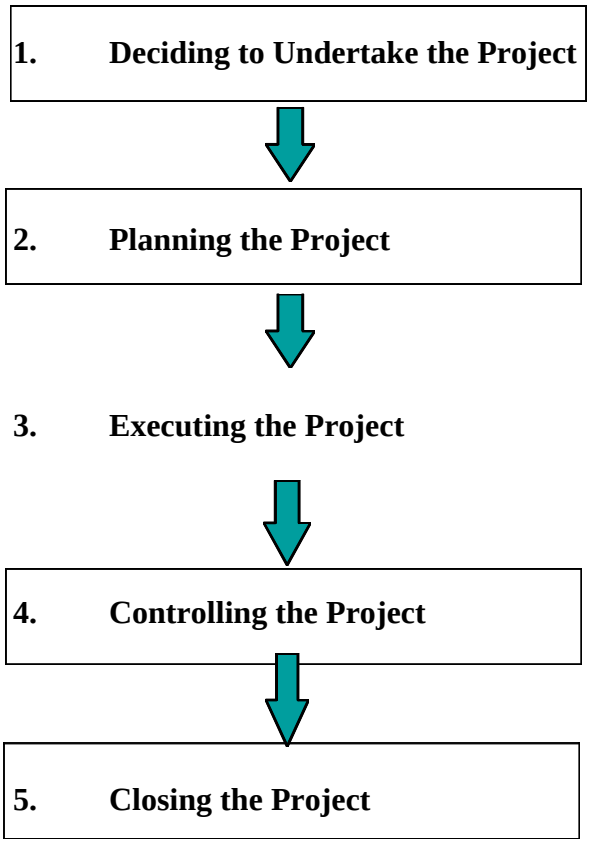
3. Transfer: Putting the impact of the risk onto someone else. Project risks are usually transferred through contracts or insurance. The project manager may use a contractor to repair the roof. This would cause the contracting company to assume responsibility in the event of a fall. The project team could also opt to purchase a significant level of liability insurance so that any damages from a fall would be covered by someone else.

4. Acceptance: Determining that you are prepared to live with a certain risk or level of risk. The project manager may determine that the repairs need to take place and that the potential of a fall is so remote that it is a risk the organization is prepared to live with.

One aspect of risk planning is the contingency plan. Planning for and anticipating the unforeseen, or the possibility that things may not go as expected, is called 'contingency planning' or “developing a plan b.” For example, if you are organizing a conference there is always a possibility that a guest speaker may cancel on short notice or not show. A contingency plan might be to insert an already prepared slide show, fill the time with a team building exercise, have a back-up speaker ready to go, or move up the existing speaker line up and finish early.

Contingency planning is about preparing fall-back actions. It is vital for any project where results and outcomes cannot be absolutely guaranteed. Contingency plans often require a contingency budget as there are usually costs associated. Likewise, it usually requires that some leeway time be built into the schedule to implement contingencies.

Project Execution {tc "**Project Execution** " \l 2**}**



Executing the project can be seen as implementing the project plan: It includes activities such as allocating resources, contract administration, distributing information, and communicating the project plan to stakeholders and project team. You must manage, motivate, inform, encourage, and empower your project team. As project manager, you are responsible for ensuring things get done. Likewise, this requires you to accept blame for anything that goes wrong. Effective execution is often a challenge:

- Pressing work arises that takes resources away from the project
- Significant budget elements may have been overlooked and projections, therefore, may not be achievable.
- Detail may be lacking in the project plan and those involved in developing the plan may not be available for clarification.

Delegation **{**tc "*Delegation* " \l 3**}**

You need to make sure tasks are delegated and actioned. A written delegation plan for project activities should specify who, what and when. Your plan will have identified those responsible for each activity. Activities need to be very clearly described, including all relevant parameters, time scales, costs, and deliverables. Good communication is essential to project execution. Delegated tasks fail when they have not been explained clearly, agreed to by the other person, supported, or checked while in progress.

One tool to assist with the delegation and communication of tasks is the Responsibility Assignment Matrix. Following is a sample matrix containing some of the activities contained in a Blueberry Yield Pilot Study. This matrix ensures that all team members understand what activities will take place and what role they will play.

Responsibility Assignment Matrix						
Team Member		Project Manager	Steering Committee	Team Member1	Team Member 2	Agri. Rep
ACTIVITY	Compiling Existing Research	S	R	A	P	I
	RFP Invitation List	R	S	A		I
	Preparing Terms of Reference	S		P	A	I
	Selecting Consultant	A	S			P
	Issuing Payments	S		A	P	
	Acceptance of Final Report	A	S			I

Key: **A**: Accountable for Task
P: Participates in Task (helps)
I: Input Required (must be consulted).
S: Sign off Required (must approve to finalize)
R: Review is Required

Project managers must understand their projects and project teams to delegate effectively. Look for differences in personality and working styles. These differences can get in the way of understanding and co-operation. Your role here is to translate, enable and motivate. Face to face meetings are an effective tool to prevent issues and relationships from becoming personalized and emotional.

Motivation **{**tc "*Motivation* " \l 3**}**

Organizational and project objectives will not be met if the Project Manager fails to motivate her / his team. Failure to achieve objectives will have serious ramifications for your project and your career! There are many benefits which result from having a motivated team such as:

- Increased co-operation of staff
- Staff are more interested in work
- Enhanced performance
- Less team conflict
- Better solutions to problems
- Less turn-over
- Reduced need for supervision

There are many challenges to maintaining the motivation of your team. Some things which can negatively impact team motivation are:

- Lack of senior level (board or executive director) commitment to the project.
- Insufficient resources to effectively execute the project.
- Unrealistic time, cost, scope, or quality requirements.
- Career uncertainty. Projects are temporary and some of those working on the project may be wondering where they will end up when the project is over. Likewise, others who were not selected to lead the project may feel their work is not valued and be re-evaluating their future with the organization.
- Resentment: People may resent you because of age / sex / education. For example, there have been many cases where older team members have refused to accept direction from a much younger project manager.
- Jealousy: Some of those who are passed over resent your selection as Project Manager. They have secretly (or in some cases openly) want to see you fail.
- Some staff may lack commitment to the job. The project may just be a pay check for them.
- Some staff may have unrealistic expectations of the project which have not been met. For example, they may have been told they would play a bigger role or that the project would be more exciting.
- A new project manager may not initially understand all that is expected of them. This uncertainty and lack of confidence may de-motivate subordinates.

As project manager, there are actions which you can take to increase motivation. Employee motivation is influenced by outside factors (rewards and punishments). You may have some control over these. Some examples include:

Rewards	**Punishments**
Recognition	Suspension
Praise	Condemnation
Money	Assigning Poor Shifts
Promotion	Denying Overtime
Awards	Demotion
Flex / compress time	
Title	
Training	

Use these factors to increase motivation. You will know your project team better than anyone but, in general, you should focus on rewards. Punishments should be employed only as a last resort. In most circumstances, recognizing excellence and giving meaningful praise when it is deserved, is all that is required.

Sometimes the size and complexity of the project can overwhelm team members. You should communicate project progress to everyone so that they understand progress is being made. You should recognize milestones as they are achieved, and celebrate accomplishments. This will reassure the team they are making headway.

The degree to which volunteers are empowered will also impact motivation. It is a challenge for project managers to determine how much autonomy to provide to team members. Clearly defined guidelines and close monitoring are necessary for inexperienced team members . For other team members who are experienced, entrepreneurial, and creative, overly rigid procedures can be very de-motivating. These team members need more freedom in how they accomplish their tasks and require less hand holding. Manage these people by the results they get - not how they get them.

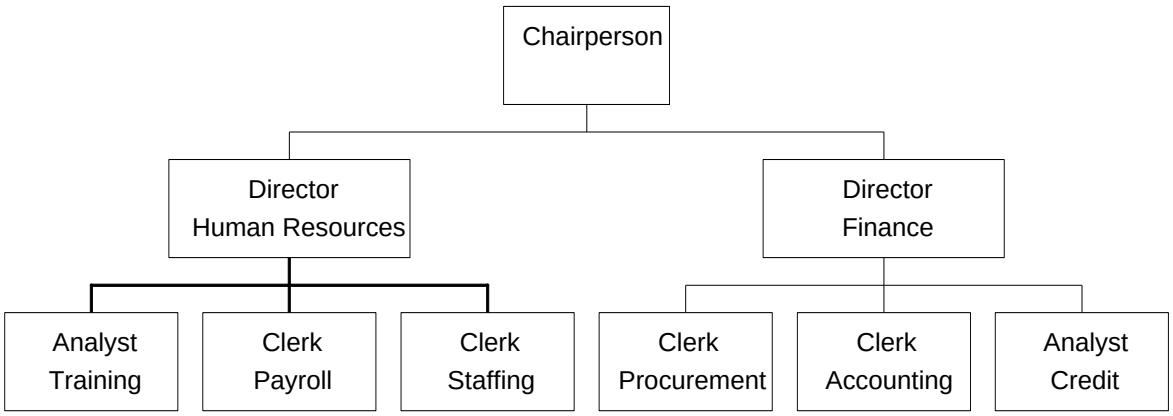
Different factors have different levels of effectiveness depending on the individual. To motivate your staff you must understand them as individuals (What are their hopes, desires, personalities and capabilities). You should try to align work objectives with the personal goals of the employee. Team members will be motivated to achieving organizational goals if achieving those goals will help them fulfil some personal need. You must motivate the team to get them to work together towards a common goal. The steps in the motivational process are:

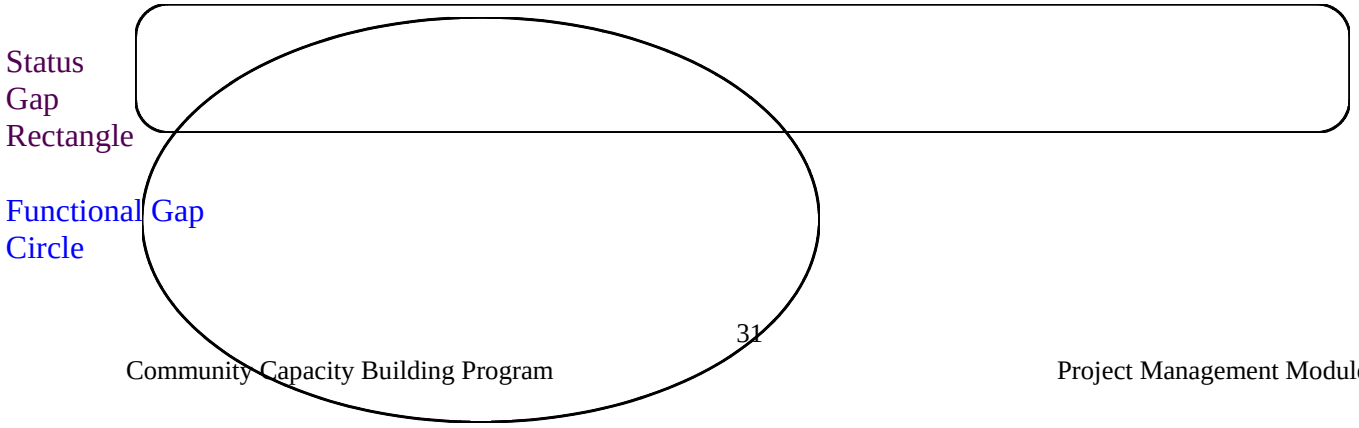
- Talk to your team members to find out what their career goals are.
- Determine if there are matches between the organization's goals and those of the employees.
- Provide direction to the employees and ensure they understand the linkages between the company's goals and their own goals.
- Involve the employees in decision making whenever appropriate.
- Measure what is important - "What gets measured gets done."
- Let the employees know how they are doing. Give them feedback.
- Reward solid performance.

Effective Communications **{**tc "*Effective Communications* " \l 3**}**

Traditional organizational structures are not capable of responding rapidly to change. Traditional management can be viewed as a pyramid. There are functional gaps (differences between types of work) and status gaps (differences between managers and staff) which create operational islands. These operational islands impede effective communications and team work. Project communications cross through these islands.

Example of Operational Islands





Good Communication is critical to the success of the project. The goal is to provide information to decision makers which is:

- relevant accurate timely

Communication has to be two way. The project manager must information and direct project stakeholders. Likewise it is also important that information on project performance flow back through the system to the people who need it. The project manager must encourage free and open communication within the project team.

All communication can be classified as either internal to the project or organization, or external. Communications can also be classified as formal or informal. Formal communications are those lines established to collect and disseminate project information. Regular distribution of performance reports to key stakeholders, for example, would be a formal communication. Try to keep all external communications through formal channels to avoid miscommunication. You should also use one spokesperson when dealing with the media to avoid any confusion or miscommunication.

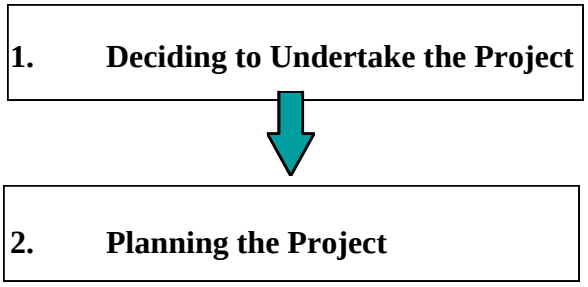
Informal communications are also important to the project. Chats during coffee breaks and social events help the project team get to know each other, bond, and share ideas. Informal communications are not, however, how you want information passed to the media or funding agencies!

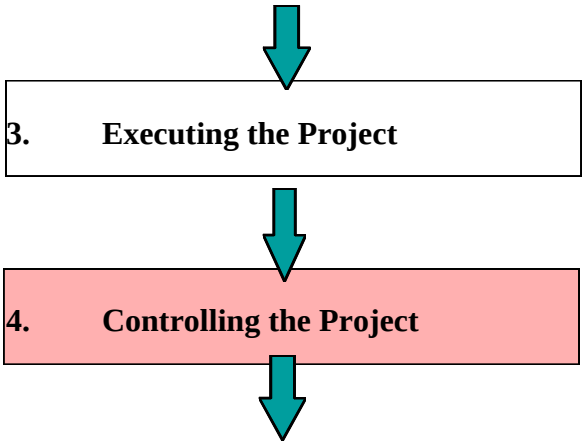
Some communication tools include:

- meetings presentations planning days
- e-mails memos / letters progress reports
- bulletin boards newsletters conversations

One common mistake in project communications has to do with relevance. Improved user friendly technology makes it possible to produce large reports sorted by a variety of categories. You must resist the temptation to distribute information just because you have it or can produce it easily. Send only the information that each stakeholder needs.

Controlling the Project {tc "**Controlling the Project** " \l 2**}**





5. Closing the Project

Controlling the project involves measuring performance to identify variances between planned and actual results, taking appropriate corrective action when required, controlling changes to the project or its end product. There are several steps which must be taken to ensure project expectations are being fulfilled. Steps in controlling a project usually involve:

1. Selecting appropriate objectives. The project requirements must be made explicit for all involved in the project to understand. Project objectives are often defined in terms of being SMART:

- Specific
- Measurable
- Attainable
- Realistic
- Time Based

2. Setting targets which challenge and create pressure for high performance. Sometimes referred to as "stretch" targets. They should be challenging but not so challenging that they are viewed as being not achievable.

3. Developing milestones. These are usually a significant event in the project such as the completion of a deliverable. They can be used to evaluate performance by comparing planned results at this point to actual results. Deviation should be checked for throughout the life of the project. There is little point of being informed of a major cost overrun at the end of the project!

4. Select appropriate measures. These are usually related to expenses, schedule, scope, and quality standards (e.g. Are we on budget at the end of phase one?). You can, however, also use subjective evaluation to measure things like your organizations relationship with other project partners, HR relations, community buy-in, etc. Any measure is appropriate if it helps ensure the project is keeping with its strategic intent. It is important that you

select measures where it is possible to gather meaningful data. In some cases, the project team may choose to measure progress against other projects or organizations. For example, if two zone boards and conducting ginseng pilot grow projects they may choose to compare how their projects are progressing. Significant differences in cost or schedule may indicate management problems.

5. Monitor and evaluate project progress. Information of progress must be evaluated, comprehended and acted upon. Variations must be investigated. You must make adjustments where necessary and inform the project team. Typical adjustments include: hiring additional staff to reduce a time overrun or stopping project overtime to reduce costs. If actual performance is radically different than planned, it may require the implementation of contingency plans. A contingency plan to address major cost overruns might be to reduce the project scope to all but what is absolutely required.

If these steps are not followed, project control will be very difficult. For example, if the strategic planning process is imprecise, the project objectives will be vague, and the project will be difficult to control. There may also be a loose approach to evaluation and control which leads to the overlooking of significant flaws. A common flaw in the control process is where organizational incentives are not aligned with project objectives. For example, rewarding speed may not be consistent with quality objectives. Likewise, a loose approach to overtime approval may actually result in schedule delays as staff do not feel pressure to perform during normal working hours.

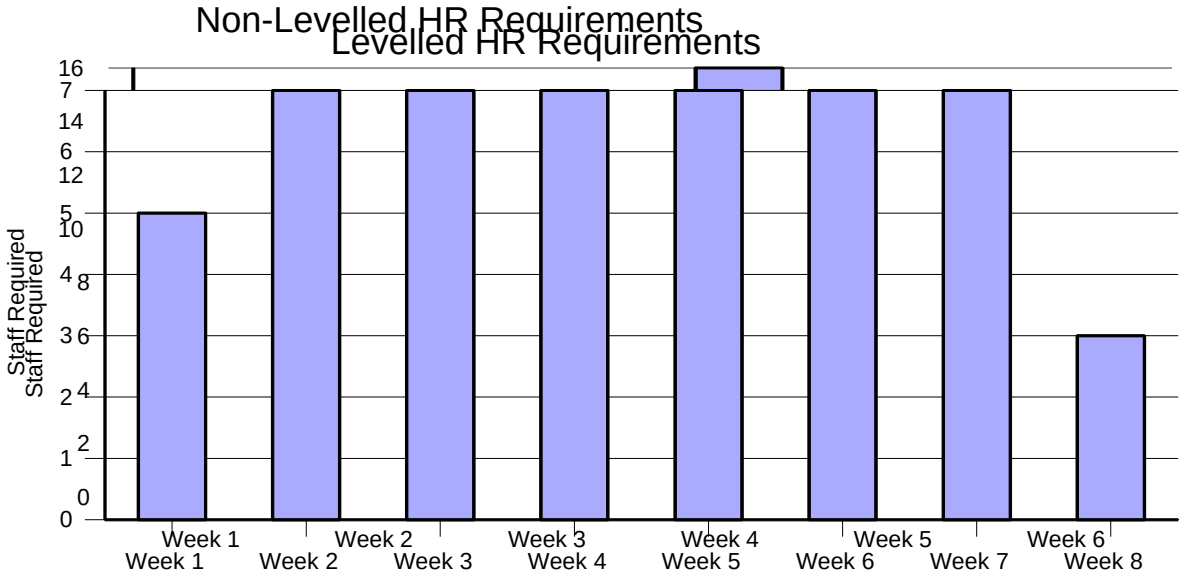
Check the progress of activities against the plan and make adjustments where necessary. Be sure to inform all stakeholders of any changes and where possible include them in the decision making process. Review performance regularly and at the pre-planned review points, and confirm the validity and relevance of the remainder of the plan. Adjust the plan if necessary in light of performance, changing circumstances, and new information, but remain on track and within the original terms of reference. Be sure to use transparent, pre-agreed measurements when judging performance. Identify, agree and delegate new actions as appropriate. Inform team members and those in authority about developments, clearly, concisely and in writing. Plan team review meetings. Stick to the monitoring systems you established. Probe the apparent situations to get at the real facts and figures. Analyze causes and learn from mistakes. Identify reliable advisors and experts in the team and use them. Keep talking to people, and make yourself available to all.

Cost Control **{**tc "*Cost Control* " \l 3**}**

Cost control is usually understood as measuring cost performance at milestones, comparing actual performance to planned, and taking corrective action as required. If your project is significantly under budget you may be able to reallocate resources to other projects that need it. More commonly, your project may find itself over budget. What should you do?

- Ensure that only project costs are being charged to the project. It is common for normal operating expenses to be charged to a project in error.
- Ensure only those authorized to enter into project commitments are doing so. Many problems have run into trouble when everyone involved in the project feels entitled to spend project funds. For example, team members may choose to order meals for meetings or undertake additional project travel. This results in the loss of control of project expenditures.
- Ensure change control processes are being followed. Only those authorized to approve changes do so. Changes have cost implications. Without tight controls, the project will experience scope creep "...unwittingly giving in to pressure to do more than has originally been planned for."
- Check resource leveling. Modifying start and finish dates of activities to make the project less capital intensive. You are essentially stretching the project schedule and eliminating overtime and the need for extra employees. (See following table).
- Try to make better use of volunteer resources and donated materials. Don't assume that you have to pay for everything.
- Revisit project deliverables to determine if all are absolutely necessary for satisfactory completion of project.
- Utilize contingency reserves (budget padding).

In the resource levelling example which follows, the project can be completed in six weeks using the outlined number of staff. As you can see there is a significant variation in the number of staff required in the beginning and the middle of the project. Hiring extra staff usually means extra cost. The selection process is itself a cost as is setting up new staff on payroll. There are also orientation costs, space requirements, etc. In addition, most employees usually go through a learning curve where they become more efficient the longer they work at a task.



Before resource levelling, project employment ranges from a low of three people per week to a high of 16 people per week for a total of 54 person weeks. After resource levelling, project employment ranges from a low of three people per week to a high of seven people per week for a total of 50 person weeks. The reduction in variance is due to the two additional weeks added to the project. The reduction of 4 person weeks of employment is due to the increased efficiency of the workforce afer a longer period on the job.

There are a number of cost management challenges which project managers face:

- Corrective action takes time to have an impact. For example, cutting overtime may take months to effect cost reduction. Some have compared correcting action to stopping an oil tanker. It takes miles to stop!
- Invoices can arrive months after the costs are incurred. You have to keep careful track of what has been committed to. Too often project managers determine where they are with respect to costs by determining how much of the project is finished and checking their bank balance.

- People tend to overlook costs such as office supplies (e.g. paper, copier charges) when setting project budgets; a product of poor resource planning.
- Accurate cost forecasting is dependent on excellent scope definition (WBS) and scheduling.

Schedule Control **{**tc "*Schedule Control* " \l 3**}**

Schedule control, like cost control, is usually understood as measuring cost performance at milestones, comparing actual performance to planned, and taking corrective action as required. Projects frequently run behind schedule; sometimes due to things beyond your control but often due to poor time management. What do you do when your project is taking longer than it should?

- Check for loss time! Often the time individuals are supposed to spend on the project is spent elsewhere (answering unrelated phone calls, helping with non-project reports, etc.) You must ensure your team are properly managing their time.

- Assign resources to critical path activities from those activities where there is float (flexibility). This concept was discussed under schedule planning. Some activities don't need to be done right away. They can be delayed for days and the overall project schedule will not change. Other activities can not be delayed without delaying the project. These are critical path activities. Focussing available resources on these activities will help keep the project on schedule.
- "Crash" the schedule. Crashing is making a trade off between cost and time. You need to determine how to save the most time at the lowest possible cost. You then apply additional resources by hiring additional workers or leasing additional equipment. These extra resources will help finish the activity more quickly but at an additional cost. It is important to note that the more you compress the schedule, the more expensive further compression becomes. There is also a point beyond which further compression is not possible.
- "Fast Tracking"activities. This is doing activities at the same time (parallel) which are normally done one after the other (series). The greater the level of fast tracking the greater the level of project risk. An example of fast tracking could be interviewing staff while waiting for funding approval. If funding is not approved the organization will lose the time spent in the selection process as a result of fast tracking.

Quality Control **{**tc "*Quality Control* " \l 3**}**

Controlling quality is important. It ensures the project fulfills its purpose. You must set quality standards, put systems in place to ensure quality standards will be achieved, check these systems to ensure they are working (often referred to as "quality audits"), and monitoring project results to determine if standards have been achieved.

For example, if your project is to construct a new community museum, a quality standard might be adherence to public accessibility regulations. You could plan to achieve this standard by developing building plans which specifications conform with the legislation and instructing contractors that the regulations must be followed. You may carry out a quality audit to see if your quality control process in being followed (are the contractors taking the steps to ensure quality which they said they would?) You could then inspect the actual work and take action if the work is not in conformance with the regulations.

Normally, quality control looks at both the output of the project (what the project is supposed to achieve) and project management (how the project is conducted). Key points to keep in mind are:

1. Prevention is less costly than inspection: In the accessibility example, it is much cheaper to plan to achieve the quality standard and ensure that people are doing what they are supposed to than it is to discover a problem after the work is completed. A problem at this point might require tearing walls down and new construction which is very costly.

2. Pareto's Law: A small number of problems will cause the bulk of your defects: Often when you investigate quality problems you will find that many problems have the same origin. This could be the same employee, contractor or piece of equipment. If you fix the underlying problem you will likely address many quality issues.

Change Control **{**tc "*Change Control* " \l 3**}**

Change control is a serious issue for project teams. Frequently there will be agreement on the scope of the project when the project is agreed to but the scope begins to broaden as the project progresses. The problem is called "scope creep." There are usually three root causes:

1. Poor planning resulting in many aspects of the project being overlooked. As a result unforseen work will have to take place for the project to accomplish what it was intended to do.

2. The client learns more about the deliverables. Often those who were the impetus for the project have not fully thought it out or were not aware of what the options for the project might be. For example, a zone board may undertake a data base of companies in the zone that provide I.T. services. Once the project is underway, someone might suggest adding several data search features (company size, type of services, affiliations, etc). Someone else might suggest that the database be broadened to include aerospace companies. Essentially, the more people know and think about it, the more they want.

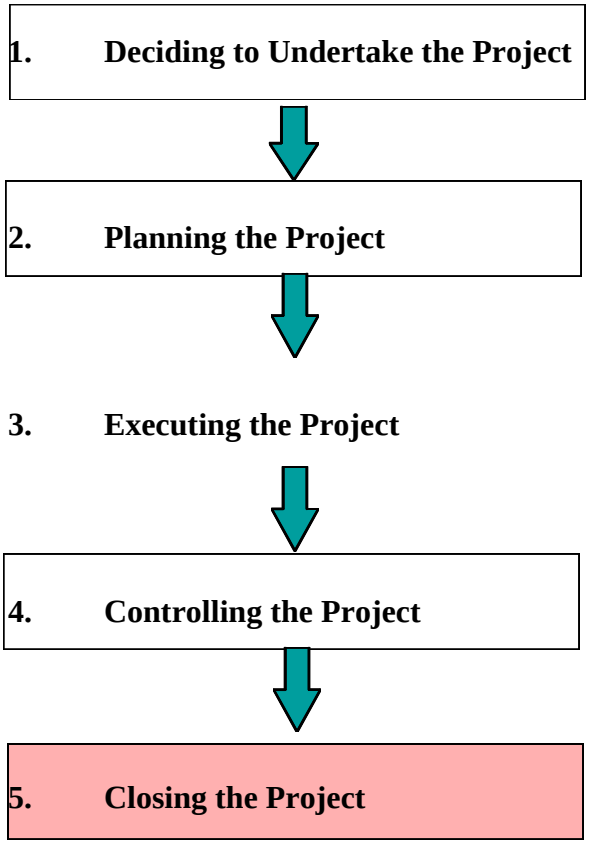
3. Changes in environment. Once a project is started there may be changes in the situation which will require project changes. Changes in government regulations, for example,

may require the purchase of additional safety equipment for the project. A technological change may require changes in a project to make it compatible with the latest software.

The project manager should:

- Develop and religiously follow a change management plan to ensure only changes that are absolutely required are approved.
- Resist the temptation to say yes to minor changes. The cumulative impact of a series of small changes may have major cost and schedule impacts. “Death by a thousand cuts.”
- Ensure the board of directors and other stakeholders are aware of the cost and schedule implications of changes.

Closing the Project {tc "**Closing the Project** " \l 2**}**



Closing out the project is often overlooked and many projects are left hanging. Properly "closing out" your project can involve things such as settling contracts and outstanding billing issues, having a final meeting of project team to review the project, filing away project records, saying good-by to everyone, submitting a final project report, etc. In general, there are four important elements of the closeout stage:

1. Performance Evaluation: Measuring how well the project performed in terms of its deliverables, schedule, and budget.
2. Documentation: The collection and storage of project records for use by future project teams.
3. Lessons Learned: Determining what can be learned from the project. Team members should identify "..their successes, their mistakes, their unjustified assumptions, and things that could have been done better."
4. Celebration: Thanking all of those who helped with the project and formally recognizing the impact of the project on the organization. The celebration will help team members make the "work-life transition" from the project to their new roles.

The lessons learned from the project are particularly important. At the end of the project you should hold a review of the project with all stakeholders (sometimes called a post-mortum meeting). The evaluation should examine what happened and why, what went well and what did not, etc. You should reflect on any failures and mistakes positively, objectively, and without allocating personal blame. Reflect on successes gratefully and realistically. Write a review report, and make observations and recommendations about follow up issues and priorities.

Scheduling Tools{tc "Scheduling Tools"}

Precedence Diagraming *{tc "Precedence Diagraming " \l 2}*

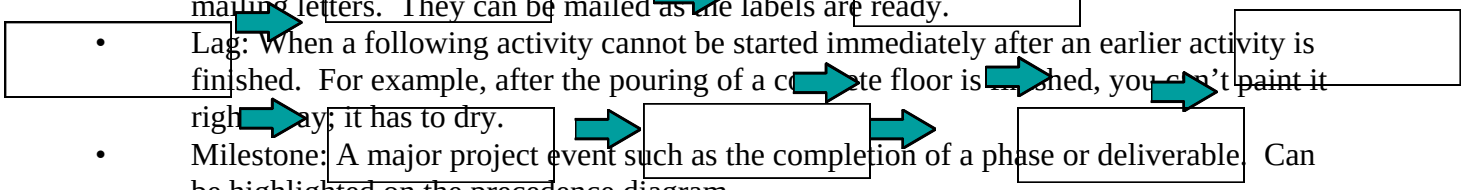
The visual representation of project activities and their dependencies is a valuable tool for developing the project schedule and communicating the schedule to others. Precedence Diagrams put activities in a logical order. There are two common types:

1. Activity on Arrow: Arrows represent project activities.
2. Activity on Node: Boxes (called nodes) represent project activities. (More commonly used).

Precedence Diagraming is often associated with "Critical Path Analysis' which was introduced in project planning. Critical Path Analysis is not as complicated as it sounds. It is simply identifying the shortest possible project completion time based on the project plan. Precedence diagrams help us identify the critical path. Together, critical path analysis and precedence diagraming are an effective means of estimating project duration.

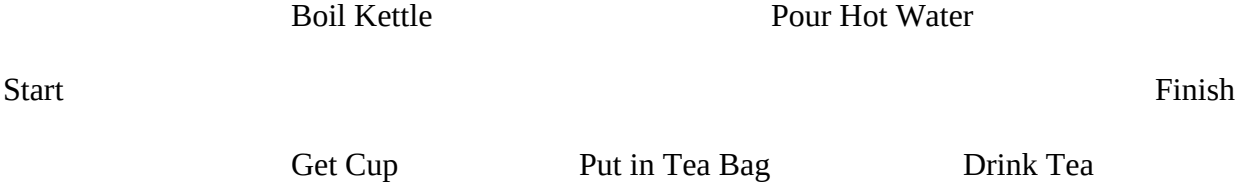
You should take the work packages identified when defining project scope and place them in the appropriate sequence; the order in which they must logically occur. (I.e. You must finish the foundation prior to building the house!) A precedence diagram helps those involved in the project to understand the relationships between project activities. Durations are assigned to each activity and a schedule is developed with start and finish times for each activity and the project as a whole.
There are several terms associated with precedence diagrams and critical path analysis. Some of these include

- Forward Pass: Working through the precedence diagram to identify the earliest possible start time for each activity as well as the project as a whole.
- Backward Pass: Working back through the precedence diagram and identifying the latest each activity can start without delaying the project.
- Critical Path: The sequence of activities that determines the earliest possible project completion date. The critical path is the longest path through any network diagram. The length of the critical path, identified in the precedence diagram, is the expected duration of the project. Any delay to a critical path activity will delay the entire project.
- Float: The amount of time an activity can be delayed from its earliest possible start date without impacting the project completion date. Activities on the critical path do not have any float.
- Lead: When a following activity can be started before an earlier activity is completely finished. For example, you don't have to wait for all the labels to be printed prior to mailing letters. They can be mailed as the labels are ready.
- Lag: When a following activity cannot be started immediately after an earlier activity is finished. For example, after the pouring of a concrete floor is finished, you can't paint it right away; it has to dry.
- Milestone: A major project event such as the completion of a phase or deliverable. Can be highlighted on the precedence diagram.



Note: There are two methods of determining project duration. There is the standard critical path analysis and the Project Evaluation and Review Technique (PERT). The Critical Path Method is what is called a "deterministic approach" to scheduling. It requires that the durations of each activity are reasonably well known. Project Evaluation and Review Technique is a probabilistic approach where activity durations are not well known. It involves statistical analysis. PERT is not required for the vast majority of projects and CPA is sometimes referred to as PERT in error.

Example Activity on Node (AON) Diagram: Making a cup of Tea



Nodes are divided to contain the information needed to calculate the forward and backward pass. Put the activities in the proper sequence (dependencies are indicated by arrows). Insert the activity durations. The very first activity starts at 0. Duration is added to earliest start to determine earliest finish. The earliest start for an activity is the earliest finish of the preceding activities which it is dependent on. Where an activity is dependent on two or more activities, the earliest start for the activity is the latest of the finish times of its dependencies. The finish time for the last activity is the project duration; completing the forward pass.

Earliest Start Time	**Duration**	**Earliest Finish Time**
Description of the Activity		
Latest Finish Time	**Float**	**Late Finish Time**

After the forward pass is determined, you can work backwards (backward pass) to determine which activities have float. Activities with 0 float are "critical path" activities. This means you can not delay these activities without delaying the entire project!

Activity on Node Exercise

Draw a precedence diagram to visually demonstrate the dependencies of project activities.

Activity	**Duration**	**Dependencies**
A	**4 weeks**	**None**
B	**4 weeks**	**A**
C	**2 weeks**	**A**
D	**4 weeks**	**C**
E	**16 week**	**B & D**
F	**2 weeks**	**D**
G	**4 weeks**	**E & F**

Gantt Charts {tc "**Gantt Charts** " \l 2**}**

Gantt Charts are extremely useful project management tools and simple to develop as it pertains to time lines, costing and major functions. You can construct a Gantt Chart using Excel or a similar spreadsheet. Also there are inexpensive software packages you can buy to assist in this process. Every key activity has a separate line. Create a time-line for the duration of the project. You can colour code the time blocks to denote type of activity (e.g. intense, watching brief, directly managed, delegated and left to run, etc.) You can schedule review and break points. At the end of each line you can show as many cost columns for the activities as you need.

A Gantt Chart is a bar chart which lists project activities down the side and dates across the top. Activity durations are represented by horizontal bars. A Gantt chart like this can be used to keep track of progress for each activity and how the costs are running. You can move the time blocks around to report on actual versus planned, and to re-schedule, and to create new plan updates. Costs columns can show plan and actual and variances, and calculate whatever totals, averages, ratios, etc you need.

Gantt Charts are the most flexible and useful of all project management tools, but remember they do not show the importance and inter-dependence of related parallel activities, and they won't show the necessity to complete one task before another can begin, as a critical path analysis will do, so you need both tools, especially at the planning stage.

Example of a Gantt Chart: Tear Room Project

Task	Sample Project Gantt Chart for a Heritage Tea Room																			
	May				June				July				August				September			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Website Development													X	X	X	X				
Promotional Brochure Development														X	X	X	X			
Production of Working Drawings	X	X																		
Drawing Approval			X																	
Exterior Restoration				X	X	X	X	X												
Exterior Painting									X	X										
Interior Restoration									X	X	X	X	X							
Interior Painting														X	X					
Electrical				X	X															

Rough Landscaping & Parking Lot									X	X									
Final Landscaping											X	X							
Directional Signage													X	X					

Risk Planning Tools{tc "Risk Planning Tools"}

There are four components of project risk management.

1. Risk Identification: Noting those risks which may impact the project.
2. Risk Quantification: determining the likelihood of the risk event and the potential impact of the event.
3. Risk Mitigation: Taking steps to reduce risk to the desired level.
4. Risk Response Control: Responding in changes in risk throughout the life of the project.

Impact - Probability Matrix {tc "**Impact - Probability Matrix** " \l 2**}**

Many project managers rank risks in terms of the potential risk impact and the likelihood of its occurrence. An Impact / Probability Matrix is often used to assist in risk quantification, mitigation, and control. (See Below). The matrix provides a visual representation of the types of risk you will encounter.

Sometimes it helps to think of a camping trip when using the matrix to classify risks. If you are camping in Labrador, there may be a high probability that you will encounter a bear. If you do encounter a bear the consequences could be severe. An encounter with a shark when fishing / swimming could be just as severe although it is much less likely to happen. There may be a high probability of encountering a rat but the impact will not be too severe (maybe the loss on some food). An encounter with bats could result in the same loss of food but you would be less likely to encounter bats.

PRO	Rats	Bears

	Bats	Sharks
	IMPACT	

No project can be successful if high probability, high impact risks (Bears) are present. You have to take actions to address these risks which "move" the risks toward the low impact, low probability quadrant (Bats). You need to reduce the probability of the risk (possibly through redesign) or its impact (insurance).

Expected Monetary Value {tc "**Expected Monetary Value** " \l 2**}**

Another way of examining risk is to put it in dollar terms. If you can place a dollar value on the risk and multiply it by the probability of occurrence. For example, if there is a 1 in 20 chance (5%) your project will finish late, resulting in an additional $5,000, the expected monetary value of the risk of finishing late is $250.

Organizations use expected monetary risk in different ways depending on their tolerance for risk. Some ignore EMV and look only at the maximum (not discounted by probability). For these organizations a high impact risk is unacceptable even if it is unlikely to happen. Other organizations determine a dollar value of risk they will accept. They then calculate the EMV for each risk and total them. If the project risk falls within acceptable limits the project can proceed.

Sample Expected Monetary Value Risk Profile			
Risk Event	Likelihood %	Impact $	Value $
Equipment Breakdown	5%	$500	$25
Team Member Quitting	10%	$1,000	$100
Project Finishing One Week Late	25%	$2,000	$500
Total Expected Monetary Value			**$625**

Expected Monetary Value Exercise

In groups, develop an Expected Monetary Value Risk Profile for a mining industry conference you are hosting. Be creative but realistic! Be prepared to discuss upon completion. For example, the key note speaker does not arrive and sponsors request a portion of their donations returned.

Project Management Tips and Suggestions{tc "Project Management Tips and Suggestions"}

Project Management Software {tc "**Project Management Software** " \l 2**}**

If your community group or Zone Board is involved in project management on an ongoing basis it would be wise to purchase project management software, much of which is useful, but before trying it you should understand and concentrate on developing the pure project management skills. The best software in the world will not help you if you can't do the key activities and initiatives.

Project Team Conflict {tc "**Project Team Conflict** " \l 2**}**

Don't assume that conflict is bad and should be avoided. Conflict is natural and can be healthy. It can actually aid the project if properly managed. This is known as constructive conflict. In general:

- The more multi-disciplinary the team the greater the tendency towards conflict.
- The lower level the perceived level of authority the project manager has the more likely there will be conflict.
- The less clear the project objectives the more conflict
- The less accountability and communication the greater the likelihood of conflict
- The greater the change, less stable the situation, the greater the likelihood of conflict
- The less prestigious the project the more conflict.

A project manager can choose to deal with conflict in several ways:

- Avoidance: Simply ignoring the conflict on a temporary basis. This is usually the preferred method for situations which are not serious and likely to work themselves out. It is also sometimes used when the project manager's attention is urgently required elsewhere or when emotions need time to settle.

- Absorption: Determining that some conflict is unavoidable and living with it. It is the same as avoidance but is not temporary. This do nothing approach is ineffective and can have adverse consequences. Some project managers take the view that the project is temporary and after it is over someone else will clean up the mess.

- Accommodating the aggrieved individual: Sometimes when an issue is important to a person but does not have serious implications for the project it is better just to give them what they want. In these situations the project manager is willing to surrender on a small issue to preserve their relationship with the team member or stakeholder.

- Imposing a resolution: Selecting a course of action which addresses the conflict and imposing it. Chances are that at least one party will not be happy with the imposed solution. It is a "win - lose"situation. It is used when time is a serious consideration or when expert judgement determines the imposed resolution is best for the project.

- Negotiating a resolution. Sitting down with the conflicting parties and working out a compromise solution. Neither party gets what they really want however they do get some of what they want. It saves face for both.

- Collaboration: The project manager tries to create a “win - win” situation. Conflicting parties brainstorm to arrive at a solution that fully addresses all concerns. This method of conflict resolution is very effective but time consuming.

To keep conflict constructive, a project manager must try to keep team members focused on project goals and build commitment to these goals. They must not tolerate personality driven conflict and try to address it before in grows more intense or spreads to others on the project team. In some cases the project managers will have to break up negative cliques or release inflexible, negative people from the project. Remember, conflict should be issue centered - not personality centered. A debate about how to deal with a problem is good. Name calling is not.

Project Stress {tc "**Project Stress** " \l 2**}**

Stress is common in projects. There are continuous deadlines, the environment is constantly changing, and team members usually have dualel reporting relationships in the sense that they usually have positions and responsibilities outside of the project. The project manger should identify stress and take corrective action BEFORE it becomes a problem.

There are physical and psychological symptoms of stress but behavioral change will be most noticeable. Some behavioral changes are:

- absenteeism
- drinking on the job
- loss of enthusiasm
- argumentative with co-workers

Project managers’s should recognize the stressfulness of the situation. Talk to your team regularly and be supportive. Offer help to those that need it. Try not to add to the stress unnecessarily. Be reasonable and fair when dealing with employees. You should also be approachable and flexible. Be sensitive to that fact that team members may be concerned about their employment status at the end of the project.

Key Project Team Member Leaves {tc "**Key Project Team Member Leaves** " \l 2**}**

The departure of key team members is very common in projects, especially longer ones. You should determine the reason why the team member left. Some reasons could include conflict with other team members, another job offer, family responsibilities, etc. There are several ways to lessen the impact of a member leaving such as:

- Ensure that all team members are aware of the work of others. Information should be shared. This way, if a team member does leave, others will be able to pick up the slack.
- Cross-train team members. Ensure other team members have the skills to pitch hit as required.

- Identify potential replacements for team members. Think about who else could do the job. This is usually done as part of the contingency planning process.

Implementing Partners Won't Commit the People You Need {tc "**Implementing Partners Won't Commit the People You Need** " \l 2**}**

Often, implementing partners or others within your organization do not want to give up their best people to work on projects. They are concerned that their organizations or the operations which they are responsible for, will be negatively impacted. It may be helpful for the project manager to:

- Sell others on the benefits of releasing good staff to work on the project. Convince them the staff will acquire new skills and contacts which can be applied upon their return. It can also refresh the employee by giving them a break from the status quo.
- Provide recognition to those who contribute staff. Thank them publically or write a letter to their boss or board of directors. This will ensure you do not face as much resistance on your next project.
- Remind others that community and economic development are all about effective partnerships. We should always set an example of how we can work together.

Appendix A: Frequently Asked Questions{tc "Appendix A\: Frequently Asked Questions"}

What is a project? {tc "**What is a project?** " \l 2**}**

There are several definitions of what is a project. Some of these are:

1. *"A project can be considered to be any series of activities and tasks that:*
   - *Have a specific objective to be completed within certain specifications*
   - *Have defined start and end dates*
   - *Have funding limits (if applicable)*
   - *Consume resources (i.e., money, people, equipment)"*

   Kerzner, Harold. PH.D
   Project Management: A Systems Approach to Planning, Scheduling and Controlling

2. *"Projects can be defined as a series of related tasks directed towards a major output."*

   Heizer, Jay. and Render, Barry.
   Operations Management

3. *"A project is a temporary endeavor undertaken to create a unique product or service"*

   Project Management Institute

What is a program? {tc "**What is a program?** " \l 2**}**

Many people confuse projects and programs. Some common definitions include:

1. *"A program is a group of projects managed in a coordinated way to obtain benefits not available from managing them individually."*

   Project Management Institute

2. *"..a programme is a set of identifiable projects aimed at achieving some goal or objective. Typically, a programme will be of longer duration than any individual project within it."*

   Alexander Roberts / William Wallace
   Edinburgh Business School, Heriot-Watt University

What is project management? {tc "**What is project management?** " \l 2**}**

1. *"Project management is the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives. Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy)."*

2. *"..project management is about achieving time, cost, and quality targets, within the context of overall strategic and tactical client requirements, by using project resources."*

Alexander Roberts / William Wallace
Edinburgh Business School, Heriot-Watt University

3. *"Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project."*

Project Management Institute

4. *"We define project management as the allocation, tracking, and utilization of resources to achieve a particular objective within a specified period of time."*

Richard Luecke, Harvard Business Essentials
Managing Projects Large and Small: The Fundamental Skills for Delivery on Budget and on Time

What is PMBOK? {tc "**What is PMBOK?** " \l 2**}**

PMBOK stands for the Project Management Body of Knowledge.

"The Project Management Body of Knowledge (PMBOK) is an inclusive term that describes the sum of knowledge within the profession of Project Management. As with other professions such as law, medicine, and accounting, the body of knowledge rests with the practitioners and academics who apply and advance it. The full PMBOK includes knowledge of proven, traditional practices which are widely applied as well as knowledge of innovative and advanced practices which have seen more limited use."

Project Management Institute

Is project management new? {tc "**Is project management new?** " \l 2**}**

No! Some project management techniques were most likely used in the construction of the Great Wall of China, the Egyptian pyramids, the Roman Coliseum, and Greek Temples. Some significant dates in project management include:

- In the late 1800's large and complex projects are undertaken (ocean liners, skyscrapers, etc.) These challenging projects increased the need for project management processes.
- In 1935 the Hoover Dam was built. The project team used a Gantt chart to assist in project planning and control.
- In the 1940's, the US atomic bomb program started. It was so complex that it required new management and control procedures. Modern day project management viewed by many as a direct descendent of this program.
- In 1957 the Dupont Corporation developed the critical path method to schedule project work.

- In 1958 the Program Evaluation and Review Technique (PERT) is developed by the US Navy to guide the development of its ballistic submarine program.
- In the 1960's, improvements in computer technology permitted computers to be used in the management of more complex projects.
- In the late 1960's, the Project Management Institute (US) and Association for Project Management (UK) were formed
- In the 1980's, low cost micro computers aggressively entered the marketplace. Today virtually everyone has access to powerful personal computers, user friendly software, and the Internet.
- Late 1980's PMI and APM produce Bodies of Knowledge to provide best practices and common language for those involved in project management. Project management is now global and generic. Skills can be utilized in different countries or different sectors.
- In 1990 Bechtel Group applies project management to extinguishing 650 burning oil wells in Kuwait, a project that involved 16,000 staff and 5,800 bulldozers.

Why is there so much focus on project management? {tc "**Why is there so much focus on project management?** " \l 2**}**

At present, project management is used all over the world, applied across all industry sectors and all disciplines. Project management is now seen as a profession and its use is growing. There are many reasons for its growth in popularity such as:

- It has proven successful!
- Increased organizational efficiency. (Project management makes better use of resources by getting work to flow horizontally as well as vertically.)
- Investors, lenders, and funding organizations seeking evidence of project management capabilities
- Free Trade and globalization have made markets more competitive. Project management is seen as a tool to enhanced competitiveness.
- North American population growth has slowed. This means the only way to grow your customer base is at the expense of an existing competitor. This has also led to increased competition.
- Rapid technological change has shortened the life of products. This gives companies a shorter time span to make money. Getting new product to market on time is critical.
- Government downsizing requires the public service to do more with less. Project management allows for more efficient resource utilization.
- Changes in organizational structures with the elimination of middle management. This has resulted in flatter less bureaucratic organizations where individuals are often called on to lead peers as project managers.

Who are Project Stakeholders? {tc "**Who are Project Stakeholders?** " \l 2**}**

1. *"Project stakeholders are individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion."*

2. *"A stakeholder is anyone with a vested interest in a project outcome. Likewise, a stakeholder is anyone who will judge a projects success or failure."*
Richard Luecke, Harvard Business Essentials
Managing Projects Large and Small:
The Fundamental Skills for Delivery on Budget and on Time

Appendix B: Sample Project Team Skills Matrix{tc "Appendix B\: Sample Project Team Skills Matrix"}

Project Team Skills Matrix (Museum Renovation)							
Skill or Knowledge Area **Team Member**	Bob	Susan	Ralph	Tina	Consultant	Electrical Contractor	Cons Cont
Stakeholder Engagement	-	H	-	H	M	-	-
Administrative / Office Skills	H	M	M	-	-	-	-
Interpretive Design	-	-	-	-	H	-	-
Building Design	-	-	-	-	-	-	L
Environmental Regulations	-	-	-	L	-	-	M
Budgeting / Cost Control	-	M	H	-	-	-	-
Scheduling /Time Management	-	M	M	L	-	-	-
Quality Management	-	M	M	L	-	-	-
Project Management	-	H	-	M	-	-	M
Construction	-	-	-	-	-	L	H
Plumbing	-	-	-	-	-	-	L
Landscaping	-	-	-	-	-	-	L
Funding Programs	M	M	-	L	-	-	-
Occupational Health and Safety	L	-	-	-	-	M	M
Contract Management	M	-	-	-	-	-	-
Payroll & Payments	H	-	-	-	-	-	-
Key: H (High), Medium (M), L (Low), - None							

Appendix C: Sample Responsibility Assignment Matrix{tc "**Appendix C\: Sample Responsibility Assignment Matrix**"}

Responsibility Assignment Matrix (Library Move)

Team Member	Project Manager	Steering Committee	Team Member1	Team Member 2	Client Rep

ACTIVITY	Team Meeting With Stakeholders	A	I	P	P	P
	Move Logistics	R	-	A	P	I
	Re-shelving	I	-	P	A	I
	Development of New Classification System	S	R	A	P	S
	Issuing Payments	S	R	A	-	-
	Issuing Progress Reports	A	R	-	P	R
	Defining Stock to be Moved	R	S	A	P	S
	Directional Signage	R	-	-	A	S
	IT Set-up	I	I	-	-	A
	Library Layout	A	S	P	P	S

Key: **A**: Accountable for Task
P: Participates in Task (helps)
I: Input Required (must be consulted).
S: Sign off Required (must approve prior to finalizing)
R: Review is Required

Appendix D: Sample Project Charter{tc "**Appendix D\: Sample Project Charter**"**}**

Project Charter	
Project Name:	Company Name:
Project Phase:	Project #:
Project Location(s):	
Project Manger: Contact Information:	Document Version #: Date:
Project Sponsor: Contact Information:	Client Representative: Contact Information:
PM Responsibilities 1. 2. 3. 4. 5.	
PM Authority 1. 2. 3. 4. 5.	

Corporate Project Rationale:
Critical Success Factors 1. 2. 3.
Project Strategy:

Expected Outcome / Product	
End Product(s) Interim Product(s)	
Project Objectives Schedule: Budget: Quality: Other:	
Project Funding Sources	
Project Scope Definition	
Project Scope Includes	Project Scope Does Not Include

Project Stakeholders
1. 2. 3. 4. 5. 6. 7. 8.
Constraints Cost: Time: Quality: Resource Limits: Contractual Provisions: Organizational Requirements: Other:

Assumptions
1. 2. 3. 4.
Project Priority:
Supporting Documents 1. 2. 3. 4. 5.

Risk Assessment		
External Project Risk	**Probability**	**Impact**
Political Risk		
Economic Risk		
Market Risk		
Other External Risk		
Internal Project Risk	**Probability**	**Impact**

Schedule Risk:		
Cost Risk:		
Technical Risk:		
Quality Risk:		
Other Internal Risk:		
Required Project Team Skills and Knowledge		
1. 2. 3. 4. 5.	6. 7. 8. 9. 10.	
Project Team Members		
Name	Division/Organization	Phone / e-mail
1		
2		
3		
4		

Training Required		
Division / Organization Involved in Project Implementation		
Authority for Project:		
Charter Sign-Off		
Title	Signature	Date
Project Manager:		
Functional Manager 1:		
Functional Manager 2:		
Client Representative:		
Project Sponsor:		

Project Charter Notes

Project Name: Usually the title which the project will be referred to within the organization. This is important so that the project is not confused with other ongoing projects.

Company Name: The name of your organization.

Project Phase: Projects are often broken into phases. Typical phases might include:

1. Initiation: Committing the organization to begin the project. At this phase the there is formal notice that the project is "a go."
2. Planning: Better defining the project scope, estimating costs / budget requirements, schedule, etc. Can be stages within planning (eg 1st, 2nd, final planning draft)
3. Execution: Making the plan happen. Can be broken down further into stages (eg. Project start-up / official launch, 25% complete, 50% complete, etc.) The project plan will usually need to be revised as the project progresses as actual results deviate from planned and corrective action is required.
4. Close Out: Winding the project down, paying final bills, documenting lessons learned, records management.

Project Number: Projects are assigned numbers so that materials relating to the project can be coded for document management (filing). The project number can also be used by accounting staff to attribute costs to the project.

Project Location(s): Description of where project activities are to take place (community, street address, region, etc).

Project Manager: May not be known at the time of developing the Project Charter. The individual who must plan, schedule, execute, and control the project.

Document Version: Prior to the project being completed the project charter will undergo several updates. There will usually be several drafts prior to the start of the project. It is a living document.

Date: When the current version of the project charter was developed.

Project Sponsor: Usually the person who authorized or directed you to undertake the project (e.g. Executive Director of Zone Board). The person should have good access to the your organization's executive / board of directors. This allows the sponsor to allocate resources to the project and remove organizational road blocks. In some organizations a project steering committee takes the role of the project sponsor.

Client Representative: The person or organization the project is being completed for; the end user of the product(s) the project produces. If the project is for an external client then the client representative would be someone from the organization that is paying you or directing you. You may, for example, develop a website for a local municipality. In this case the municipality is the client.

If the project is internally focussed then the client representative would likely be someone from the division most impacted by the product(s) produced. For example, if the project was a new attendance tracking system then someone for a Human Resources or Payroll division would likely be the representative. The client group selects its representative.

PM Responsibilities: Helps clarify what is expected of the PM. There can be variations depending on the project and situation. Typical responsibilities include:

- Formal communications with the company executive, customer, suppliers, and contractors.

- Development of the project plan, subject to executive and/or client approval.
- Monitoring, evaluating, and controlling the project while it is ongoing.
- Providing status reports to board of directors, executive and /or client.
- Informing functional managers of responsibilities / expectations.
- Directing project staff.
- Scheduling project staff.
- Maintaining project time lines, budgets, standards, etc.
- Ensuring safety guidelines are adhered to.
- Maintaining all project files.
- Compiling a project "lessons learned" at the completion of the project.

PM Authority: Helps clarify what the PM can do and can not do. Authority delegated to the PM might include:

- Contact the client as needed (Some organizations would not want this).
- Issue project payments in accordance with plan. (May be cap with expenditures over a certain level requiring executive sign-off).
- To interface with functional managers as required.
- Request relevant reports from contractors and / or functional managers (i.e. Accounting).
- Negotiate with functional managers over project staffing.
- Approve staff travel within budget.
- Delegate responsibilities to project team members.
- Revise the project plan (may require executive or client approval for changes to scope, budget, quality standards, or time lines.
- Dismiss or discipline project team members.
- Approve performance based incentive pay.

Corporate Rationale for Project: The business need that the project is supposed to address, how the project contributes to a program of activities, or how the project will help realize the organizational vision.

Critical Success Factors: Any factor which, if absent, could cause the project to be described as a failure. For example, if you organize the company BBQ and everything goes according to plan but the staff do not enjoy themselves the project is a failure. Could include:

- Stakeholder acceptance
- Completion on time / on budget / to specification / to standard
- Customer satisfaction
- Smooth flow of core operations

Project Strategy: How the project will be approached. Could include the ranking of trade-off options, linkages to other ongoing projects, etc.

Expected Outcome / Product: What the project will produce.

End Product(s): This specifies what the expected final outputs of the project will be but not how they will be achieved. The outputs usually become more defined as the project progresses. For example, the outputs of a business planning project might be:

- A bound business plan with a full SWOT analysis.
- A 20 minute PowerPoint presentation with business plan highlights.
- A list of references consulted in developing the plan.

Interim Product(s): Products which must be produced enroute to producing end products. These are often used as benchmarks for measuring progress. Interim products of a business planning project might be:

- A report of stakeholder input / consultations.
- A proposed business plan outline.
- By-weekly progress reports to the project steering committee.
- A draft business plan.

Project Objectives: Usually expressed as SMART (specific, measurable, action focussed, realistic and time-based) where possible.

- Schedule: Required time lines. For example, the final business plan and references must be submitted to the project sponsor, in her office, by 5:00 pm January 31, 200X. The PowerPoint presentation must be submitted by 5:00 pm February 15, 200X. All supporting documentation and invoices must be submitted by March 31, 200X.

- Budget: Anticipated expenditures. For example, project costs must not exceed $6.000 professional fees, $3,000 travel, $500 binding and copying, $1,000 miscellaneous. There may also be notes on the timing of expenditures. For example, no more than 50% of total projected cost may be disbursed prior to January 1st 200X.
- Quality: Expected standards. For example, The plan must be completed by a Certified Small Business Councillor. The document must be free of grammatical, mathematical, and spelling errors. References must be noted in scientific notation format. Printing must be one sided in colour. Document covers must be durable transparent plastic and binding must be wire.
- Scope: May indicate elements which there is no flexibility on. For example, the business plan should developed in consultation with stakeholders. In this case the organization would rather not have a plan than have one developed without stakeholder input.
- Other: Any other objective the organization might outline. For example, the business planning process should not disrupt the ongoing flow of organizational work.

Project Funding Source(s): Identify where the funds required to complete the project will come from. Funding sources could include your organization's operating budget, charitable foundations, donations, government funding agencies, etc.

Project Scope Definition: What the project is and what it is not. Helps prevent "scope creep." As the project advances in planning in may become more detailed. In the case of a business plan development project, the scope may include a full risk assessment, pricing recommendations, and marketing plan. The scope may exclude product design, plan implementation, or sourcing funds to undertake the plan.

Project Stakeholders: Those with an interest in the project. Often defined as anyone impacted by the project or its outputs. Can include unions, environmental groups, banks, investors, media, competitors, etc.

Constraints: Factors that limit the options of the project team:

1. Cost: This would include any budgetary limits or policy restrictions. For example, the budget may be fixed, a ratio of labour to materials may have to be maintained, or there may be dollar limits on what team members can spend without getting the approval of the project manager or board.

2. Time: This would include any schedule requirements which are inflexible such as project completion or the completion of various milestones.

3. Quality: This would include any standards which must be adhered to. Standards could be related to the project (e.g. complying with "working from heights" regulations) or its end product (e.g. complying with national building codes).

4. Resources: This would include plants space limitations, number of skilled workers, capacity of heavy equipment, etc.

5. Contractual Requirements: Some contracts have provisions which can limit options. For example, the contract might specify that you won't have access to the project site on weekends and holidays.

6. Organizational Requirements: The organization will usually be inflexible on some aspect of the project (budget, completion date, quality of output, or project scope) or on the way the project is executed (hiring policies, accounting systems, etc).

7. Other: Anything that limits your options. For example, government project procurement is often subject to the public tender process.

Assumptions: Things which you presume to be true for planning purposes. This could include things like the entire project team being available for the duration of the project, raw material costs remaining at current levels, or the construction season ending in November.

Project Priority: Usually ranked on some kind of scale (e.g. low, medium, high, urgent). This allows for efficient allocation of resources between projects. For example, if an internal policy manual development project requested the same staff person as an important project for a major client on a deadline, then the latter should prevail.

Supporting Documents: Any documents relating to the project which: better describe the product, clarify project goals, explain the project context, etc. These could include:

- Minutes of steering committee meetings
- Product drawings / specifications
- Company business plans
- Strategic Planning Documentation
- Funding Proposals and Contracts
- Customer correspondence

Risk Assessment: Looks at internal and external risks (both positive and negative), determines the likelihood of occurrence and what the probable impact would be in the risk event happened.

External Project Risk: Risks beyond the control of the project team.

- Political Risk - e.g. legislative change requiring new safety features for product.
- Economic Risk - e.g. recession.
- Market Risk - e.g. competitor completes a similar project ahead of yours.
- Other External Risk - e.g. a new technology is developed which renders the project output obsolete.

Internal Project Risk: Risks which you can control.

- Schedule Risk - project runs behind schedule
- Cost Risk - project runs over projected costs
- Technical Risk - e.g production difficulties
- Quality Risk - the product does not meet standards
- Other Internal Risk - e.g. key staff quit

Required Project Team Skills and Knowledge: Can assist which project team selection or the procurement of contracted services. Could include any skills, knowledge, abilities, or personal certifications required to effectively plan and execute the project. Could include financial

management skills, technical skills, understanding of existing corporate culture, public speaking skills, Professional Engineer Certification, etc.

Project Team Members: Should note what division or functional area within the organization the team member is from. Can include members from outside your organization such as consultants, contractors, client representatives, or stakeholder representatives (government departments, municipalities, zone boards, regional development associations, impacted community groups, etc). For external team members you should note the company, agency, or organization members belong to.

Training Required: Details of any training project team members must undertake to successfully complete the project. It may include management training (ie. project management, communications, conflict resolution, etc) or technical training (ie. computer training, carpentry, first aid, etc.).

Division / Organization Involved in Project Implementation: There may be groups involved in implementing the project which are not on the project team. For example, accounts payable and procurement divisions may assist in the project but not be represented on the team.

Authority for Project: The project may have been directed by the executive. It may have been an action item in the organization's strategic plan

Charter Sign-off: Ensures that key people have a common understanding of what the project is. Signatories may include the project manager, relevant functional managers, client representative, and project sponsor. Sometimes this is not an option in organizations with little project management history.