

**LEARNER GUIDE**

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| **NATIONAL DIPLOMA: ORGANISATIONAL TRANSFORMATION AND CHANGE MANAGEMENT**  **ID 49076 – NQF LEVEL 5 – 251 CREDITS** |

**APPLY A RANGE OF PROJECT MANAGEMENT TOOLS**

**US ID:** **10140**

**Learner Information (Please Complete this Section)**

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| Name & Surname: |  |
| Organisation/Venue: |  |
| Workplace Unit/Dept: |  |
| Facilitator Name: |  |

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**Learner Guide Information**

The purpose of this Learner Guide is to provide learners with the necessary knowledge and provide a comprehensive overview relating to the following skills program or unit standard: **APPLY A RANGE OF PROJECT MANAGEMENT TOOLS**, which has been developed for the qualification:**.** This Learner Guide is to improve the skills and knowledge of learners, and thus enabling them to effectively and efficiently complete specific tasks. Learners are to attend training workshops/sessions according to SAQA requirements as well as specified by their organization. These workshops/sessions are presented, and conducted by a qualified facilitator.

**Assessment Criteria**

The assessment process involves collecting and interpreting evidence about the learner’s ability to perform a task, which will be achieved through a combination of formative and summative assessments. In this guide there may be assessments in the form of activities, assignments, tasks or projects, as well as workplace practical tasks. The learner is to perform these tasks and provide required and ***authentic*** evidence in their portfolio of evidence.

To qualify and receive credits towards the learning programme or unit standard, a registered assessor and moderator will conduct an evaluation and assessment of the learner’s portfolio of evidence and competency.

**Outcomes**

**The qualifying learner is capable of:**

• Demonstrating an understanding of project management tools.

• Using a range of project management tools.

**Learner Responsibility**

The responsibility of learning rest with the learner, so:

* Be proactive and ask questions,
* Seek assistance and help from your facilitators, if required.

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| **Learning Unit1** | **US:10140, NQF LEVEL 4 WORTH 8 CREDITS**  **APPLY A RANGE OF PROJECT MANAGEMENT TOOLS** |
| **Unit Standard Purpose** | This unit standard is a core standard and forms part of the qualification, National Certificate Project Management and is registered at Level 4 on the National Qualifications Framework. Learners accessing this standard will be involved in project management teams or involved in building small project management teams. These projects may be technical projects, business projects or developmental projects and will cut across a range of economic sectors. This standard will also add value to learners who are running their own business and recognise that project management forms an integral component of any business. Learners acquiring this standard will be able to demonstrate an understanding of project management tools and the use of a range of project management tools.  The qualifying learner is capable of:   * Demonstrating an understanding of project management tools. * Using a range of project management tools. |
| **Learning Assumed to be in Place** | * Learners accessing this qualification will have demonstrated competence against standards in project management practices or equivalent of NQF Level 3. |

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| **Session 1**  **SO 1** | **DEMONSTRATE AN UNDERSTANDING OF PROJECT MANAGEMENT TOOLS.** |
| **Learning Outcomes**  **(Assessment Criteria)** | * A range of tools used in project management is explained. * Limitations of a project management tools are explained. * Methods of executing a project are described. * How tools can assist in executing a project are described. |

**INTRODUCTION.**

**Within each programme area the projects are selected according to clear criteria and with the intention of each project aligning to the other in some way.**

The main differences between programme management and project management are listed below:

**Project management entails:**

1. The implementation and monitoring of specific projects
2. Clearly defined Project objectives and SMART indicators
3. Project management tools related to the Implementation plan and PPM; normally emphasising timelines and methodology, as well as drawing up and implementing Project Plans
4. Definite start and end (closing) dates.

**Programme management entails:**

1. Consolidated monitoring and reporting on a number of projects
2. Measuring overall impact and outcomes according to performance measure indicators
3. Programme implementation and control frameworks
4. No defined start and end date; programmes typically involve continuous performance according to various plans, and ongoing implementation of different projects concurrently or following on one another.

***THE BENEFITS OF A PROGRAMME MANAGEMENT APPROACH***

The proper Programme Management approach offers a number of advantages:

* Programme Management enables the alignment of different learning projects, supporting more effective achievement of objectives because of the link between projects
* A more focused approach ensures the relevant issues are highlighted to ensure delivery
* Programme Management is likely to result in a more effective management of resources through integration between projects, based on the strategic significance of different projects
* This approach also incorporates a mechanism to identify and emphasise key stakeholders and role-players, enabling optimal and active participation of such parties in planning and implementation processes.
* Proper programme management means that the desired benefits can be achieved through planning. One of the main reasons for this is that individual projects tend to focus on deadlines and deliverables, rather than emphasising strategic objectives, as is the priority for programme management.
* One of the most important principles of programme management is co-ordination of the activities of practitioners and other staff who are involved in the different courses. For this, you will have to consult with all the people involved in delivering training, continuously.

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| Determine Project Constraints |  |
| Determine Project Assumptions |  |
| Presenting your business Case |  |
| Speaking to the Business Need |  |
| Brainstorming and Consultation |  |
| Presenting a Business Case |  |
| Completing the Project Definition Document |  |
| Planning the time element |  |
| Time Estimate: Mathematical method (PERT) |  |
| PERT Calculations (1) |  |
| PERT Calculations (2) |  |
| Buffer Time |  |
| Project Schedule Charts (1) |  |
| Project Schedule Charts (2) |  |
| Updating Project Assumptions and time Constraints |  |
| Planning the Cost element |  |
| Resource identification |  |
| Cost Estimate Methods |  |
| Administrative Costs |  |
| Buffer Costs |  |
| Human Resource Management Plan |  |
| Project Cost Constraints and Assumptions |  |
| Earned Value analysis |  |
| Assuming Resources Responsibility |  |
| Planning the Quality Element |  |
| Decision Making and Risk Taking Skills |  |

**Determine Project Constraints**

Project constraints:

* Time
* Cost
* Quality

Participation

* Stakeholders
* SMEs

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Project constraints are anything that limits or restricts the actions that can be taken to accomplish goals and execute objectives. Constraints will affect the entire project and all goals within the project.

As stated earlier, during a project life cycle, you will have to manage three basic constraints that will have impacts on each other. These three project constraints are:

* **Time**
* **Cost**
* **Quality**

Let us review how these constraints can directly affect each other:

Suppose your boss solicits you to go to the moon. You, being the adventure that you are, readily agree; however, your boss specifies that you need to be there by midnight. You may have all the money and all the resources but limited time.

Let us say that you were managing a project that would produce a new product within two weeks; however, you realize that you are behind on your schedule. What can you do?

You may decide to do one of the following:

You may decide to bring in more people and resources to get the job finished on time, but this will coast more money

Or

You may decide to produce a lower quality product, as this may allow you to finish on schedule without spending more money.

Or

As a lat resort, you may decide to request an extension on the delivery date, as this may allow you to maintain product quality; however, you may still spend a little moremoney as your resources will be in use for a longer period of time

Do you see that one of the biggest challenges for a project manager is to balance project constraints to produce the best possible results!

**Planning a project**

Project planning is extremely important. This entails looking closely at all aspects of a project and then making decisions to:

* Direct the intent of the project
* Identify actions, risks, constraints (obstacles) and responsibilities within the project
* Guide the ongoing activities of the project
* Prepare the project for changes

Part of project planning is the identification of:

* Who will be responsible for the project (Project Manager)
* The project Goals and Objectives
* The resources required for completing the project successfully

**a. Project Objective**

The **project objective** describes what the project needs to have achieved by the time that it comes to the end of the time allocated to it.

***Project objectives must be SMART.***

**S**pecific: Objectives have to be specific – there must be no room for confusion in terms of what needs to be done

**M**easurable: Objectives have to be measurable – there must be some performance criteria that can be used as a yardstick to determine whether the objectives have been met

**A**greed upon: Objectives have to be agreed upon, especially by the client and the project manager. Any confusion over the objectives can lead to project failure

**R**ealistic: Objectives have to be realistic – they need to consider, amongst other things, the available resources, budget, time allocated, skills and experience of project team members and the limitations imposed on the project by the environment

**T**ime Constraints: There needs to be a specific completion date for each phase of the project

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| http://3.bp.blogspot.com/_0EodaYtqevU/TMun5XOj03I/AAAAAAAAAIU/lzrnWelQjgc/s1600/group-discussion.jpg**Exercises** | **Working in groups, take a project that is currently being managed in the labour centre. Write down what the objectives are of the project and then show how these objectives are SMART.** |

project management, tools, process, plans and project planning tips

Here are rules, processes and tools for project planning and project management.

While project management skills are obviously important for project managers, interestingly the methods and tools that project managers use can be helpful for everyone.

A 'task' does not necessarily have to be called a 'project' in order for project management methods to be very useful in its planning and implementation. Even the smallest task can benefit from the use of a well-chosen project management technique or tool, especially in the planning stage.

Any task that requires some preparation to achieve a successful outcome, will probably be done better by using a few project management methods somewhere in the process. Project management methods can help in the planning and managing of all sorts of tasks, especially complex activities.

Project management is chiefly associated with planning and managing change in an organization, but a project can also be something unrelated to business - even a domestic situation, such as moving house, or planning a wedding.

Project management methods and tools can therefore be useful far more widely than people assume.

Project management techniques and project planning tools are useful for any tasks in which different outcomes are possible - where risks of problems and failures exist - and so require planning and assessing options, and organizing activities and resources to deliver a successful result.

Projects can be various shapes and sizes, from the small and straightforward to extremely large and highly complex.

In organizations and businesses, project management can be concerned with anything, particularly introducing or changing things, in any area or function, for example:

* people, staffing and management
* products and services
* materials, manufacturing and production
* IT and communications
* plant, vehicles, equipment
* storage, distribution, logistics
* buildings and premises
* finance, administration, acquisition and divestment
* purchasing
* sales, selling, marketing
* human resources development and training
* customer service and relations
* quality, health and safety,
* legal and professional
* technical, scientific, research and development
* new business development
* and anything else which needs planning and managing within organizations.

Successful project management, for projects large or small, tends to follow the process outlined below.

The same principles, used selectively and appropriately, also apply to smaller tasks.

Project management techniques are not just for project managers - they are available for anyone to use.

**Project Management Process**

Agree precise specification for the project - 'Terms of Reference'

Plan the project - time, team, activities, resources, financials - using suitable project management tools.

Communicate the project plan to your project team - and to any other interested people and groups.

**Agree and delegate project actions.**

Manage and motivate - inform, encourage, enable the project team.

Check, measure, monitor, review project progress - adjust project plans, and inform the project team and others.

Complete project - review and report on project performance; give praise and thanks to the project team.

Project follow-up - train, support, measure and report results and benefits.

**1 - agree precise specification (terms of reference) for the project**

Often called the project 'terms of reference', the project specification should be an accurate description of what the project aims to achieve, and the criteria and flexibilities involved, its parameters, scope, range, outputs, sources, participants, budgets and timescales (beware - see note below about planning timescales).

Usually the project manager must consult with others and then agree the project specification with superiors, or with relevant authorities. The specification may involve several drafts before it is agreed. A project specification is essential in that it creates a measurable accountability for anyone wishing at any time to assess how the project is going, or its success on completion. Project terms of reference also provide an essential discipline and framework to keep the project on track, and concerned with the original agreed aims and parameters. A properly formulated and agreed project specification also protects the project manager from being held to account for issues that are outside the original scope of the project or beyond the project manager's control.

This is the stage to agree special conditions or exceptions with those in authority. Once you've published the terms of reference you have created a very firm set of expectations by which you will be judged. So if you have any concerns, or want to renegotiate, now's the time to do it.

The largest projects can require several weeks to produce and agree project terms of reference. Most normal business projects however require a few days thinking and consulting to produce a suitable project specification. Establishing and agreeing a project specification is an important process even if your task is simple one.

**A template for a project specification:**

**Describe purpose, aims and deliverables.**

State parameters (timescales, budgets, range, scope, territory, authority).

State people involved and the way the team will work (frequency of meetings, decision-making process).

Establish 'break-points' at which to review and check progress, and how progress and results will be measured.

Separately the acronym BOSCARDET provides a useful example structure for Terms of Reference headings/sections: Background, Objectives, Scope, Constraints, Assumptions, Reporting, Dependencies, Estimates, Timescales. This structure contains no specific heading for costs/budgets - these considerations can be included within 'Constraints' or 'Estimates'.

Since projects (and other activities requiring Terms of Reference) vary considerably there is no standard universal structure for a Terms of Reference document. The responsibility lies with the project manager or leader to ensure all relevant and necessary issues are included, and this local interpretation tends to imply TOR headings and document structure. Brainstorming can be a helpful process by which all relevant Terms of Reference criteria can be indentified and structured.

Organizations may have standard TOR structures, such as the BOSCARDET example, which it is sensible to use where applicable, mindful of risks of omission or over-complication that can arise when following standard practice. See also Terms of Reference in the business dictionary section.

**2 - Plan The Project**

Plan the various stages and activities of the project. Where possible (and certainly where necessary) involve your team in the planning. A useful tip is to work backwards from the end aim, identifying all the things that need to be put in place and done, in reverse order. Additionally, from the bare beginnings of the project, use brainstorming (noting ideas and points at random - typically with a project team), to help gather points and issues and to explore innovations and ideas. Fishbone diagrams are also useful for brainstorming and identifying causal factors which might otherwise be forgotten. For complex projects, or when you lack experience of the issues, involve others in the brainstorming process. Thereafter it's a question of putting the issues in the right order, and establishing relationships and links between each issue. Complex projects will have a number of activities running in parallel. Some parts of the project will need other parts of the project to be completed before they can begin or progress. Such 'interdependent' parts of a project need particularly careful consideration and planning. Some projects will require a feasibility stage before the completion of a detailed plan. Gantt Charts and Critical Path Analysis Flow Diagrams are two commonly used tools for detailed project management planning, enabling scheduling, costing and budgeting and other financials, and project management and reporting.

**Project Timescales And Costs**

Most projects come in late - that's just the way it is - so don't plan a timescale that is over-ambitious. Ideally plan for some slippage. If you have been given an fixed deadline, plan to meet it earlier, and work back from that earlier date. Build some slippage or leeway into each phase of the project. Err on the side of caution where you can. Projects which slip back and are delivered late, or which run over budget or fail to meet other financial requirements often cause significant problems. Many planners are put under pressure to deliver projects sooner and more cost-effectively than is realistic. Ambition and aiming high are good attitudes, but planning without proper prudence and responsibility is daft. Investors and executives tend rarely to question an over-ambitious plan, but they will quickly make very ruthless decisions when any overly ambitious project starts to fail. Exercising a little realism at the outset of a project regarding financials and timescales can save an enormous amount of trouble later.

**The Project Team**

Another important part of the planning stage is picking your team. Take great care, especially if you have team-members imposed on you by the project brief. Selecting and gaining commitment from the best team members - whether directly employed, freelance, contractors, suppliers, consultants or other partners - is crucial to the quality of the project, and the ease with which you are able to manage it. Generally try to establish your team as soon as possible. Identifying or appointing one or two people even during the terms of reference stage is possible sometimes. Appointing the team early maximises their ownership and buy-in to the project, and maximises what they can contribute. But be very wary of appointing people before you are sure how good they are, and not until they have committed themselves to the project upon terms that are clearly understood and acceptable. Don't imagine that teams need to be full of paid and official project team members. Some of the most valuable team members are informal advisors, mentors, helpers, who want nothing other than to be involved and a few words of thanks. Project management on a tight budget can be a lonely business - get some help from good people you can trust, whatever the budget.

To plan and manage large complex projects with various parallel and dependent activities you will need to put together a 'Critical Path Analysis' and a spreadsheet on MS Excel or equivalent. Critical Path Analysis will show you the order in which tasks must be performed, and the relative importance of tasks. Some tasks can appear small and insignificant when they might actually be hugely influential in enabling much bigger activities to proceed or give best results. A Gantt chart is a useful way of showing blocks of activities over time and at a given cost and for managing the project and its costs along the way.

Various project management software is available, much of which is useful, but before trying it you should understand and concentrate on developing the pure project management skills, which are described in this process. The best software in the world will not help you if you can't do the basic things.

**Project Management Tools**

Here are examples and explanations of four commonly used tools in project planning and project management, namely: Brainstorming, Fishbone Diagrams, Critical Path Analysis Flow Diagrams, and Gantt Charts. Additionally and separately see business process modelling and quality management, which contain related tools and methods aside from the main project management models shown below.

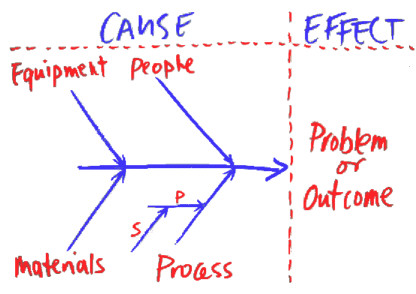
The tools here each have their strengths and particular purposes, summarised as a basic guide in the matrix below.

**Brainstorming**

Brainstorming is usually the first crucial creative stage of the project management and project planning process. See the brainstorming method in detail and explained separately, because it many other useful applications outside of project management.

Unlike most project management skills and methods, the first stages of the brainstorming process is ideally a free-thinking and random technique. Consequently it can be overlooked or under-utilized because it not a natural approach for many people whose mains strengths are in systems and processes. Consequently this stage of the project planning process can benefit from being facilitated by a team member able to manage such a session, specifically to help very organised people to think randomly and creatively.

**Fishbone Diagrams**



Fishbone diagrams are chiefly used in quality management fault-detection, and in business process improvement, especially in manufacturing and production, but the model is also very useful in project management planning and task management generally.

Within project management fishbone diagrams are useful for early planning, notably when gathering and organising factors, for example during brainstorming.

Fishbone diagrams are very good for identifying hidden factors which can be significant in enabling larger activities, resources areas, or parts of a process.

Fishbone diagrams are not good for scheduling or showing interdependent time-critical factors.

Fishbone diagrams are also called 'cause and effect diagrams' and Ishikawa diagrams, after Kaoru Ishikawa (1915-89), a Japanese professor specialising in industrial quality management and engineering who devised the technique in the 1960s.

Ishikawa's diagram became known as a fishbone diagram, obviously, because it looks like a fishbone:

A fishbone diagram has a central spine running left to right, around which is built a map of factors which contribute to the final result (or problem).

For each project the main categories of factors are identified and shown as the main 'bones' leading to the spine.

Into each category can be drawn 'primary' elements or factors (shown as P in the diagram), and into these can be drawn secondary elements or factors (shown as S). This is done for every category, and can be extended to third or fourth level factors if necessary.

The diagram above is a very simple one. Typically fishbone diagrams have six or more main bones feeding into the spine. Other main category factors can include Environment, Management, Systems, Training, Legal, etc.

The categories used in a fishbone diagram should be whatever makes sense for the project. Various standard category sets exist for different industrial applications, however it is important that your chosen structure is right for your own situation, rather than taking a standard set of category headings and hoping that it fits.

At a simple level the fishbone diagram is a very effective planning model and tool - especially for 'mapping' an entire operation.

Where a fishbone diagram is used for project planning of course the 'Effect' is shown as an aim or outcome or result, not a problem.

The 'Problem' term is used in fault diagnosis and in quality management problem-solving. Some fishbone diagrams can become very complex indeed, which is common in specialised quality management areas, especially where systems are computerised.

This model, and the critical path analysis diagram are similar to the even more complex diagrams used on business process modelling within areas of business planning and and business process improvement.

**Project Critical Path Analysis (Flow Diagram Or Chart)**

'Critical Path Analysis' sounds very complicated, but it's a very logical and effective method for planning and managing complex projects. A critical path analysis is normally shown as a flow diagram, whose format is linear (organised in a line), and specifically a time-line.

Critical Path Analysis is also called Critical Path Method - it's the same thing - and the terms are commonly abbreviated, to CPA and CPM.

A commonly used tool within Critical Path Analysis is PERT (Program/Programme/Project Evaluation and Review Technique) which is a specialised method for identifying related and interdependent activities and events, especially where a big project may contain hundreds or thousands of connected elements. PERT is not normally relevant in simple projects, but any project of considerable size and complexity, particularly when timings and interdependency issues are crucial, can benefit from the detailed analysis enabled by PERT methods. PERT analysis commonly feeds into Critical Path Analysis and to other broader project management systems, such as those mentioned here.

Critical Path Analysis flow diagrams are very good for showing interdependent factors whose timings overlap or coincide. They also enable a plan to be scheduled according to a timescale. Critical Path Analysis flow diagrams also enable costings and budgeting, although not quite as easily as Gantt charts (below), and they also help planners to identify causal elements, although not quite so easily as fishbone diagrams (below).

This is how to create a Critical Path Analysis. As an example, the project is a simple one - making a fried breakfast.

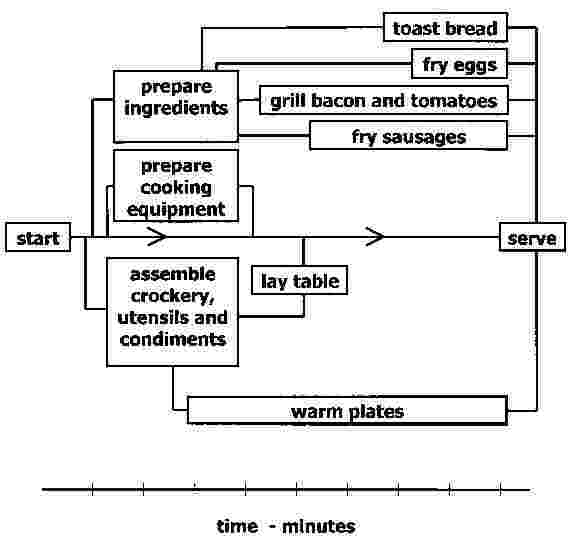
First note down all the issues (resources and activities in a rough order), again for example:

Assemble crockery and utensils, assemble ingredients, prepare equipment, make toast, fry sausages and eggs, grill bacon and tomatoes, lay table, warm plates, serve.

Note that some of these activities must happen in parallel - and crucially they are interdependent. That is to say, if you tried to make a fried breakfast by doing one task at a time, and one after the other, things would go wrong. Certain tasks must be started before others, and certain tasks must be completed in order for others to begin. The plates need to be warming while other activities are going on. The toast needs to be toasting while the sausages are frying, and at the same time the bacon and sausages are under the grill. The eggs need to be fried last. A Critical Path Analysis is a diagrammatical representation of what needs done and when. Timescales and costs can be applied to each activity and resource. Here's the Critical Path **Analysis for making a fried breakfast:**

This Critical Path Analysis example below shows just a few activities over a few minutes. Normal business projects would see the analysis extending several times wider than this example, and the time line would be based on weeks or months. It is possible to use MS Excel or a similar spreadsheet to create a Critical Path Analysis, which allows financial totals and time totals to be planned and tracked. Various specialised project management software enable the same thing. Beware however of spending weeks on the intricacies of computer modelling, when in the early stages especially, a carefully hand drawn diagram - which requires no computer training at all - can put 90% of the thinking and structure in place. (See the details about the most incredible planning and communications tool ever invented, and available for just a tiny fraction of the price of all the alternatives.)

**Project critical path analysis flow diagram example**

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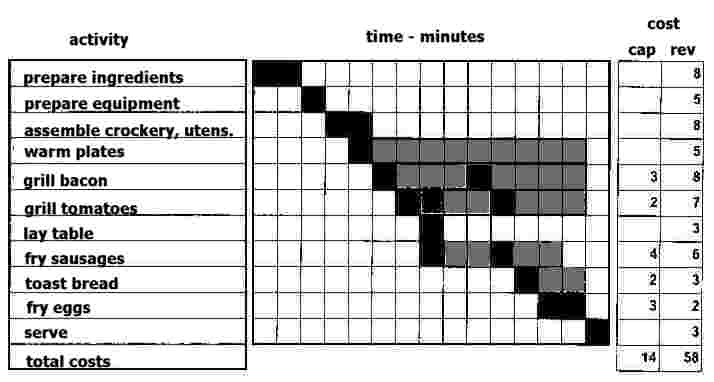
**Gantt Charts**

Gantt Charts (commonly wrongly called gant charts) are extremely useful project management tools. The Gantt Chart is named after US engineer and consultant Henry Gantt (1861-1919) who devised the technique in the 1910s.

Gantt charts are excellent models for scheduling and for budgeting, and for reporting and presenting and communicating project plans and progress easily and quickly, but as a rule Gantt Charts are not as good as a Critical Path Analysis Flow Diagram for identifying and showing interdependent factors, or for 'mapping' a plan from and/or into all of its detailed causal or contributing elements.

You can construct a Gantt Chart using MSExcel or a similar spreadsheet. Every activity has a separate line. Create a time-line for the duration of the project (the breakfast example shows minutes, but normally you would use weeks, or for very big long-term projects, months). You can colour code the time blocks to denote type of activity (for example, intense, watching brief, directly managed, delegated and left-to-run, etc.) You can schedule review and insert break points. At the end of each line you can show as many cost columns for the activities as you need. The breakfast example shows just the capital cost of the consumable items and a revenue cost for labour and fuel. 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 actuals versus planned, and to re-schedule, and to create new plan updates. Costs columns can show plan and actuals and variances, and calculate whatever totals, averages, ratios, etc., that you need. Gantt Charts are probably the most flexible and useful of all project management tools, but remember they do not very easily or obviously show the importance and inter-dependence of related parallel activities, and they won't obviously show the necessity to complete one task before another can begin, as a Critical Path Analysis will do, so you may need both tools, especially at the planning stage, and almost certainly for large complex projects.

**Gantt Chart Example**



A wide range of computerised systems/software now exists for project management and planning, and new methods continue to be developed. It is an area of high innovation, with lots of scope for improvement and development. I welcome suggestions of particularly good systems, especially if inexpensive or free. Many organizations develop or specify particular computerised tools, so it's a good idea to seek local relevant advice and examples of best practice before deciding the best computerised project management system(s) for your own situation.

**Project Planning Tools**naturally become used also for subsequent project reporting, presentations, etc., and you will make life easier for everyone if you use formats that people recognize and find familiar.

**Project Financial Planning And Reporting**

For projects involving more than petty cash you'll probably need a spreadsheet to plan and report planned and actual expenditure. Use MSExcel or similar. Financial accounting for small projects can sometimes be managed using the project's Gantt Chart. Large projects are likely to require some sort of require dedicated accounting system, although conceivably Gantt Charts and financial management accounts can easily be administered within a spreadsheet system given sufficient expertise. If you don't know how to put together a basic financial plan, get some help from someone who does, and make sure you bring a good friendly, flexible financial person into your team - it's a key function of project management, and if you can't manage the financial processes your self you need to be able to rely completely on whoever does it for you. 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. Create a system for allocating incoming invoices to the correct activities (your bought-ledger people won't know unless you tell them), and showing when the costs hit the project account. Establish clear payment terms with all suppliers and stick to them. 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 almost certainly need it.

**Project Contingency Planning**

Planning for and anticipating the unforeseen, or the possibility that things may not go as expected, is called 'contingency planning'. Contingency planning is vital in any task when results and outcomes cannot be absolutely guaranteed. Often a contingency budget needs to be planned as there are usually costs associated. Contingency planning is about preparing fall-back actions, and making sure that leeway for time, activity and resource exists to rectify or replace first-choice plans. A simple contingency plan for the fried breakfast would be to plan for the possibility of breaking the yolk of an egg, in which case spare resource (eggs) should be budgeted for and available if needed. Another might be to prepare some hash-browns and mushrooms in the event that any of the diners are vegetarian. It may be difficult to anticipate precisely what contingency to plan for in complex long-term projects, in which case simply a contingency budget is provided, to be allocated later when and if required.

**3 - Communicate The Project Plan To Your Team**

This serves two purposes: it informs people what's happening, and it obtains essential support, agreement and commitment. If your project is complex and involves a team, then you should involve the team in the planning process to maximise buy-in, ownership, and thereby accountability. Your project will also benefit from input and consultation from relevant people at an early stage.

Also consider how best to communicate the aims and approach of your project to others in your organization and wider network.

Your project 'team' can extend more widely than you might first imagine. Consider all the possible 'stakeholders' - those who have an interest in your project and the areas it touches and needs to attract support or tolerance.

Involvement and communication are vital for cooperation and support. Failing to communicate to people (who might have no great input, but whose cooperation is crucial) is a common reason for arousing suspicion and objections, defensiveness or resistance.

**4 - Agree And Delegate Project Actions**

Your plan will have identified those responsible for each activity. Activities need to be very clearly described, including all relevant parameters, timescales, costs, and deliverables. Use the SMART acronym to help you delegate tasks properly. See the delegation tips and processes. Using proper delegation methods is vital for successful project management involving teams. When delegated tasks fail this is typically because they have not been explained clearly, agreed with the other person, or supported and checked while in progress. So publish the full plan to all in the team, and consider carefully how to delegate medium-to-long-term tasks in light of team members' forward-planning capabilities. Long-term complex projects need to be planned in more detail, and great care must be taken in delegating and supporting them. Only delegate tasks which pass the SMART test. Other useful materials to help understand team delegation are the Tannenbaum and Schmidt Continuum, and Tuckman's group forming/performing model. The Johari Window model is also an excellent review framework for quickly checking or reminding about mutual awareness among team members in large complex projects, where there is often a risk of project fragmentation and people 'doing their own thing' in blissful isolation - which seriously undermines even the best planned projects.

**5 - Manage, Motivate, Inform, Encourage, Enable The Project Team**

Manage the team and activities in meetings, communicating, supporting, and helping with decisions (but not making them for people who can make them for themselves). 'Praise loudly; blame softly.' (a wonderful maxim attributed to Catherine the Great). One of the big challenges for a project manager is deciding how much freedom to give for each delegated activity. Tight parameters and lots of checking are necessary for inexperienced people who like clear instructions, but this approach is the kiss of death to experienced, entrepreneurial and creative people. They need a wider brief, more freedom, and less checking. Manage these people by the results they get - not how they get them. Look out for differences in personality and working styles in your team. Misunderstanding personal styles can get in the way of team cooperation. Your role here is to enable and translate. Face to face meetings, when you can bring team members together, are generally the best way to avoid issues and relationships becoming personalised and emotional. Communicate progress and successes regularly to everyone. Give the people in your team the plaudits, particularly when someone high up expresses satisfaction - never, never accept plaudits yourself. Conversely - you must take the blame for anything that goes wrong - never 'dump' (your problems or stresses) on anyone in your team. As project manager any problem is always ultimately down to you anyway. Use empathy and conflict handling techniques, and look out for signs of stress and manage it accordingly. A happy positive team with a basic plan will outperform a miserable team with a brilliant plan, every time.

**6 - Check, Measure, And Review Project Performance; Adjust Project Plans; Inform Project Team And Others**

Check the progress of activities against the plan. Review performance regularly and at the stipulated 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. (Which shows how essential it is to have these measures in place and clearly agreed before the task begins.) 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. Analyse 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.

**7 - Complete Project; Review And Report On Project; Give Praise And Thanks To The Project Team**

At the end of your successful project hold a review with the team. Ensure you understand what happened and why. 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 - there will be plenty.

**8 - Follow Up - Train, Support, Measure And Report Project Results And Benefits**

Traditionally this stage would be considered part of the project completion, but increasingly an emphasised additional stage of project follow-up is appropriate.

This is particularly so in very political environments, and/or where projects benefits have relatively low visibility and meaning to stakeholders (staff, customers, investors, etc), especially if the project also has very high costs, as ICT projects tend to do.

ICT (information and communications technology) projects often are like this - low visibility of benefits but very high costs, and also very high stress and risk levels too.

Project management almost always involves change management too, within which it's very important to consider the effects of the project on people who have to adapt to the change. There is often a training or education need. There will almost certainly be an explanation need, in which for example methods like team briefing have prove very useful.

Whatever, when you are focused on project management it is easy to forget or ignore that many people are affected in some way by the results of the project. Change is difficult, even when it is good and for right reasons. Remembering this during and at the end of your project will help you achieve a project that is well received, as well as successful purely in project management terms.

**Advantages of using project management tools are:**

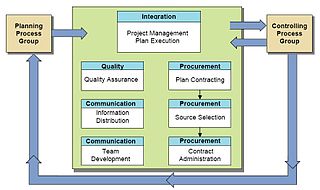
* Tools can facilitate the creation and maintenance of project artifacts (e.g. project schedule) and especially good at complex analysis (e.g. Earned Value Management);
* Tools are very good at linking to sub-projects or other work packages/plans;
* Tools are very good at providing various outputs (e.g. Gantt Charts, Milestone Charts, Network Diagrams etc)
* They can assist in the estimating/scheduling/planning stage and many scenarios can be run to find the most appropriate course of action;
* They are a good reminder of what needs to be done and what is outstanding;
* They can help record, link and analyse lots of data (e.g. Requirements Management Tool, Change Management Tool; Stakeholder Management Tool or Lessons Learnt Tool);
* They are good for trend analysis and looking at prioritising or re-scheduling activities (e.g. resource scheduling);
* Contribute to the build up of statistical information to assist in improving management of future projects;
* Allows a more objective comparison of alternative actions/decisions and provides repeatable results;
* Helps distinguish between good and bad luck and good and bad management;
* It can provide electronic methods of approvals, speeding up decision making;
* Can be very good when teams are not co-located at one place, and the team can access data when they need it and not rely on any individual (e.g. methods and procedure database with the most up-to-date versions on it);
* Can be good at generating automated reports (e.g. timecards associated with individual projects), if they are setup in the right way in the first place;
* Very good at re-assigning authority when individuals are away, so decisions can still be made and do not rely on single points of failure;
* The requirement to measure physical items facilitates tighter management controls;

**Disadvantages of using project management tools are:**

* Some people (including management, team members, stakeholders) can find them difficult to understand;
* Tools can sometimes take too much time just to maintain the data and keep the tool updated - Don't under estimate the cost of capturing the data;
* They take time and effort and funding to train the staff to use;
* Often can often be expensive and there is a license fee attached to the tool (if not developed in house) and annual maintenance charges;
* Change them and updating can be costly and complex;
* Staff can use them inappropriately and not enter the required data to make them worthwhile (e.g. risk management tools);
* They can require lots of data to be generated and if it is not generated, then the results of the tool maybe suspect;
* If not understood properly they can be prone to error and can produce misleading results and can lead the Project Manager to make ill-informed decisions;
* They can be too complicated, too time-consuming and unnecessary for small projects;
* Use with caution on very large and complex networked projects because you can make a change and this could affect the rest of the project and you may not be aware of the automated changes the tool makes;
* People can tend to trust the tool outputs without questioning the rigor that went into producing the results;
* It can be very difficult retrospectively looking at what happened if you didn't capture the input data at the time;
* Tools can hide the detail and provide a whole project view, which may hide over performance in one area and under-performance in another.

Project Management Tools are very useful if applied in a disciplined manner. If they are used to replace expertise and in other inappropriate ways, then they will not provide value for money. Project Managers should constantly review the use and output of tools, because just because one was bought some time ago, it doesn't mean it is still of value today or in the future. If you want to migrate data to the next generation system, consider using open architecture or commercial standard tools and systems, otherwise if you use be-spoke systems it could be more costly in the future. Also look at what tools your customers and competitors use.

**Executing**

Executing consists of the processes used to complete the work defined in the project plan to accomplish the project's requirements. Execution process involves coordinating people and resources, as well as integrating and performing the activities of the project in accordance with the project management plan. The deliverables are produced as outputs from the processes performed as defined in the project management plan and other frameworks that might be applicable to the type of project at hand.

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| **Session 2**  **SO 2** | **USE A RANGE OF PROJECT MANAGEMENT TOOLS.** |
| **Learning Outcomes**  **(Assessment Criteria)** | * Project management tools are used in accordance with established standards and procedures. * Outputs of project management tools meet individual, team and organisational needs/requirements. |

**Project Management Tools**

As you move ahead in your career, you are likely to face more complex and difficult challenges. Some of these will involve the coordination of many different people, the completion of many tasks in a precise sequence, and the expenditure of a great deal of time and money. Whether you succeed or fail with these projects depends on how good you are at project management

**The Time constraint** is directly linked to the schedule completion of your project and would affect anyone responsible for actions within the project. This would include project team members and outsourced services.

**The Cost constraints** will directly affect the budget for your project and your ability to accomplish each goal and the entire project. This constraint will directly affect the allocation and availability of resources for the project.

**The Quality constraints** will directly affect the scope and standard of work that can be accomplished by your project. High quality means doing more, whereas low quality means less. To do more, you need more time, resources and money; whereas, to do less requires less time, resources and money

We have learned that constraints limit actions; however, they can also actually affect what our goals, objectives and specifications are. Essentially, constraints can also define actions.

Remember, every project has project stakeholders who came with expectations. Your stakeholders may be expecting a certain level of quality to be produced within a definite budget and timeframe. Therefore, we can say hat the successful project manager completes his project within budget, on or before the deadline, and produces the expected level of quality

Are there any other constraints that can limit or restrict the project team’s actions/document your findings for future reference.

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Project constraints, like all aspects of project management, depend heavily consultation and brainstorming session with key stakeholders so that constraints can be documented. For your constraints to be accurately identified, relevant project stakeholders must officially agree to them.

The following are guidelines for identifying the project constraints:

1. Bring together key stakeholders for a planning meeting.
2. Gather responses to key questions from stakeholders
3. Develop a draft set of constraints for review by stakeholders
4. Adjust the draft based upon recommendations
5. Develop the project’s constraints document

The following are example of some questions that can be reviewed by stakeholders to determine project constraints.

**Time** (*These are general estimates that will be further broken down and clarified when you create you Work Breakdown Structure)*

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| When does the project need to be completed? |

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| When does the project need to start? |

When does each goal need to be started and completed?

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**Cost** (*These are general estimates that will be further broken down and clarified when you create you Work Breakdown Structure)*

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| What is the overall budget for the project? |

What is the budget to accomplish each goal?

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**Quality***(Remember quality is directly linked to the scope of work. This can be determined by referring to the goals, objectives, and their specifications. This will be further broken down when you create your Work Breakdown Structure.)*

What goals and objectives the projects need to accomplish?

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| What are the specifications or quality requirement of each goal?   |  |  |  | | --- | --- | --- | | Other:   |  |  | | --- | --- | | Are they any other constraints that need to be identified?   |  | | --- | | Does the project have a primary constraint?  By gathering and compiling the responses to the above questions, you will be able to develop the *Project Constraints Document* | | | |

***Participation: Determine Project Assumptions***

Project assumptions are factors that relate to your project that are assumed to be real, true, or certain. Assumptions naturally imply some degree of risk. Assumptions are really “best guesses” or estimate on different factors; however, as more information comes into the project, assumptions can be updated and clarified.

When determining assumptions, you should consider the following areas:

* **Resources Availability:** For example, team members and equipment
* **Dependencies**: Are you depending on other projects, services providers, or department for completion or hand-off dates/
* **Project Time Estimates**: Estimates for completion of goals and objectives.
* **Project Cost Estimates:** Estimates for the costs of implementation and execution of different goals and the entire project – essentially, budget estimates.
* **Deliverables:** deliverables will actually meet stakeholders’ expectations
* **Contractor Availability**: Would contractors be available when required? Consider if the project is delayed one week, would contractors still be available?
* **Performance Issues**: Would resources perform as expected?
* **Delivery Times:** Would vendors deliver materials on time?

All assumptions should be substantiated to confirm that they are reasonable assumptions. This substantiation process may include things such as vendor contracts that bind vendors to performance criteria, or any other means of verifying your assumptions.

There are so many assumptions that you will discover when you involve stakeholders and SMEs in the identification process. Subject Matter Experts can play a crucial role in determining and substantiating assumptions. Project assumptions depend heavily on consultation and brainstorming sessions with key stakeholders who document the assumptions. Project stakeholders should formally agree to a set of assumptions. The following are guidelines for identifying the project assumptions:

1. Bring together key stakeholders for planning meeting
2. Gather responses to key questions form stakeholders
3. Develop a draft set of assumptions for review by stakeholders
4. Adjust the draft based upon recommendations
5. Develop the project’s assumptions

The following questions would allow you to document project assumptions:

What assumptions have we make or need to make when undertaking the project?

Document all assumptions.

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How can we substantiate or confirm that we have made a reasonable assumption?

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By gathering and compiling responses to the above questions you will be able to determine the *Project Assumption Document*

**PROJECT MANAGEMENT**

Although projects are part of overall programmes, the management of a project is somewhat different from the management of a programme.

**Defining projects**

Most of the work undertaken in the labour centres, takes the form of projects. Funds that are channelled through the SDFW to the provinces and labour centres are allocated to projects. An ESP is thus responsible for managing projects or part of projects. A great deal of the planning that is done is project based.

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| http://3.bp.blogspot.com/_0EodaYtqevU/TMun5XOj03I/AAAAAAAAAIU/lzrnWelQjgc/s1600/group-discussion.jpg**Exercises** | **Working in groups, formulate your own definition of what makes up a “project”** |

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Projects use specific resources and people and follow a defined plan over a set time frame.

Any project is made up of a variety of steps that need to be completed before the next step can be started. This is sometimes referred to as a hierarchy of steps or activities and forms the basis of the project’s structure. Each activity or step relates to a specific deliverable (outcome – a task that must be completed and can be measured). Attached to each deliverable are the required specific resources.

A number of different definitions are provided for ‘project’. For the purpose of this unit, the following should be remembered:

Projects are made up of different components. A project will always have:

* Products or end results
* Clear start and end dates
* Specific resources allocated to the project such as: people, equipment, facilities and budget

A project is a sequence of activities which:

* Are connected
* Are conducted over a period of time
* Have a unique and defined outcome

Projects have a specific life span

This means that there is a given, specified time in which the project must begin and end – it might be anything from one day to a few years, but it must always have a specified end date.

Projects are always unique

This means that the product or service from one project is different from that of other projects.A few examples of general projects are: Building a house, Launching a new product, Designing a new organisational structure, Implementing a new computer system, Teaching a specific subject.

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| http://3.bp.blogspot.com/_0EodaYtqevU/TMun5XOj03I/AAAAAAAAAIU/lzrnWelQjgc/s1600/group-discussion.jpg**Exercises** | **Suggest what you think is the difference between general work and project work and give a few examples, which are obvious in your labour centre.** |

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**PROJECT MANAGEMENT FUNCTIONS**

Project management is a process of leading and guiding a team of individuals through a range of activities to deliver a specific output, according to a specific timeframe. From what we have just discussed, this all seems rather simple – there does not appear to be too much to stress about in this form of management. However, to make it work, a project needs to be very carefully **planned** and, once it starts, it must also be **monitored** on an ongoing and intense basis.

**Phases of a project**

It is very important to understand that there are very separate and distinct stages or phases to a project.

Conceptualising

Planning

Implementation

Monitoring and reporting

Close out and review

Close out and review

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| http://3.bp.blogspot.com/_0EodaYtqevU/TMun5XOj03I/AAAAAAAAAIU/lzrnWelQjgc/s1600/group-discussion.jpg**Exercises** | **The diagram on the previous page shows the phases of a project. You have now worked with projects in the labour centre and we have said that one of the characteristics of a project is that one phase has to be completed before you begin with the next one. However, what do you do if you reach the planning stage and you realise that there is something wrong with the concept, or you are monitoring the project and you find a problem. Explain fully what you would then need to do.** |

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