Project Management For Christian Leaders

Mike Waddell

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Mike provides project consultancy and training services for Claybury International's clients.

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Table of Contents

Introduction 6

The Christian Project Manager 6

Project Management: A Practical Guide for Christian Leaders 8

The Project Canvas 8

Man's Methods v God's Plans 8

Projects are about People 9

Part 1 The Project 10

What is a Project? 11

The Project Canvas 12

Using the Project Canvas 15

Ten Steps for Effective Project Management 21

Part 2: The Spiritual Project Manager 33

Seeking God's Plans 34

The Project Manager's Burden 35

Understanding God's Plans 36

Seeking Wisdom 39

Dealing with Anxiety 40

Part 3: The Christ-Centred Project Team Leader 42

The Christ-Centred Servant Leader 43

Developing the Team 45

Being a Leader of People 50

Effective Communications 55

Meeting Challenges with Creativity 66

Part 4: Project Planning 78

Customer Requirements 79

Customer Acceptance 84

Project Risks 91

Project Solution 99

Project Plan 102

The Volunteer Workforce 111
Key Resources 115
Key Partners 116
Project Costs 117
Project Benefit 119
Part 5: Project Management 120
The Importance of Documentation 121
Outsourcing the Solution 125
Project Monitoring 129
Change Management 137
Maintaining Course 147
The Goal 149
Appendix 1: Project Information 151
Document Types 153
Appendix 2: Seven Steps to Good Requirements 158
Step 1: Outline the Concept 159
Step 2: Identify the Key Stakeholders 160
Step 3: Capture Requirements and Refine the Problem Statement 163
Step 4: Categorise Requirements 168
Step 5: Record and Prioritise Requirements 170
Step 6: Review and Confirm Requirements 172
Step 7: Stakeholder Agreement 173
Bibliography 174
Table of Figures 175
Index 177

Introduction

The Christian Project Manager

The project is a concept with which we are all familiar, or at least we think we are. Therein lies a problem, especially when projects get big in terms of importance, costs, impact or goals. This familiarity may lead us into launching projects without the proper preparation, planning and skills. Most times the result is high levels of pain in terms of stress, waste of money and resources, and frequently failure.

In the Christian sphere, where many enterprises are funded by donation, money and resources are in scarce supply. More than that, the necessary skills to run a project are also in scarce supply. This leads to people who are ill equipped through no fault of their own, finding themselves in the pressure cooker of project management.

The aim of this book is to provide some means of redressing that balance by setting out a simple guide to equip the Christian project manager with some of the basic tools necessary to run a project successfully.

There are other, more sophisticated approaches to managing projects mainly to be found in the technology fields, especially software. But the aim for this manual is to keep to the basics and so provide a tutorial and process guide for the novice project manager as well as to provide a reference book for the more experienced but infrequent project manager.

The content of this book is borne out of many years in the global telecoms industry defining and managing projects of different natures and varying complexity, and running multiple project teams around the world.

The second edition of this book has tidied up some of the text but has importantly added Appendix 2:
Seven Steps to Good Requirements which provides more guidance on preparing the requirements which are the necessary precursor to any project. In Part 3:
The Christ-Centred
Project Team Leader I also refer to a new Claybury International/One Another Ministries resource: Growing the Servant Heart. This is an on-line programme aimed at helping Christian leaders lead people from a Christ-like servant heart. It is available, free of charge at: http://academy.christian-leadership.org

Project Management: A Practical Guide for Christian Leaders

The first edition of the booklet "Project Management: A Practical Guide for Christian Leaders" simply highlighted ten crucial issues to which the project manager must attend in order to lay the foundations of a successful project. These have been included in the second part of this book. The intent behind the new material in this book is to provide a set of practical tools and techniques which allow the project manager to achieve these ten steps. Dependent upon the size and scope of the project, not all of these tools may need to be used to their full extent.

The Project Canvas

The idea of the Project Canvas is inspired by Alexander Osterwalder and Yves Pigneur who, with the aid of many others, found a new way of mapping and working on business plans in their brilliant book "Business Model Generation" (Wiley).

The idea of the Canvas is to visually present the key factors of a project in a single view that allows the essence of the project to be more easily grasped and enable a group to work on it collectively. From the project manager's perspective it sets the top level agenda. Beneath that, dependent upon the actual project, there will be varying levels of essential detail. This book also covers some of the key aspects of that detail and the necessary processes in order to better equip you to be a project manager.

Man's Methods v God's Plans

In God's kingdom service we need to be wary of over reliance upon method so that we avoid the trap of replacing His plans and purposes with our own. Method is important and it helps us achieve, however, we need to be careful not to displace God with that method because often God's blessing falls not simply on doing his work but doing it his way. There are ample Biblical lessons that highlight this, not least Joshua, whom we discuss in Part 2. So even as we set out the Project Canvas keep in mind that our purpose is Kingdom service and with that, doing things in a way that brings glory and honour to God.

Projects are about People

When it comes to planning and implementing a project by being focused on the outcome, it is too easy to lose sight of the fact that a project is about people. It is people that make it happen and no project manager, let alone the Christian project manager, should simplistically make his project plan the Holy Grail. The project manager is first the leader of people in his project team and modelling that leadership upon Christ's servant leadership style, as made visible in the Bible, is of first importance. His goal is to enable his people to achieve their full Kingdom potential as they serve the Kingdom through the delivery of the project. Part 3 introduces some basic servant leadership concepts.

The role of the project manager can be challenging but it is one that generates a sense of achievement when the project concludes successfully. Even more so for the Christian who, in his service of God, understands that this achievement is first and foremost for the Kingdom.

Part 1
The Project

The first question that needs to be resolved is, “What is a project?” Many activities which are not really projects become labelled as such and would not benefit from formal project management. So it’s worth getting our heads around this question.

Having considered that question we then take a high level look at the anatomy of a project so we can grasp the big picture. In so doing we introduce a new tool to help the project manager work at this level – the Project Canvas.

What is a Project?

According to the Project Management Institute's "A Guide to the Project Management Body of Knowledge" a project is **"a temporary endeavour undertaken to create a unique product or service."**

- That it is "temporary" means that it takes time but has both a beginning and an end; it reaches a definite conclusion.
- That it is an "endeavour undertaken" implies the need of organised work to bring it to its conclusion and so it requires organisation and effort, and it has a cost.
- That a project creates a "unique product or service" requires that it have a clear objective and with that comes a definite scope.

These three elements: time, cost and scope are referred to as the project triangle. They are vital elements in defining and managing a project. As we shall see later, because this relationship means that a change in one of these elements affects the others.

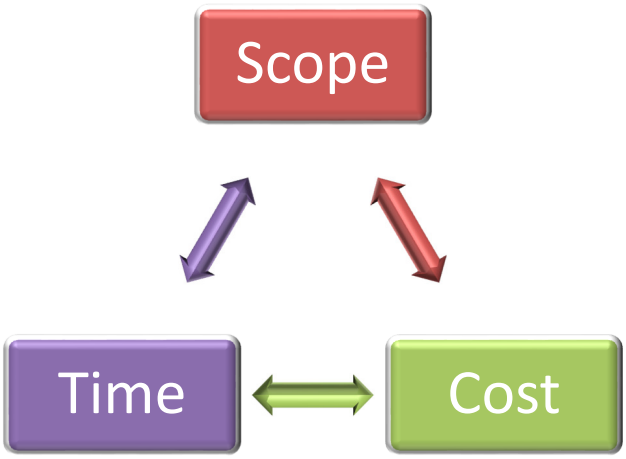

Figure 1 The Project Triangle

The Project Canvas

The Project Canvas captures in one view the key elements of a project, each of which contributes to one or more of the three elements of the project triangle. We will unpack these in more detail as we progress, but for now we will simply look at the Canvas in overview.

The place to start in this overview is the end goal – the Customer Requirements:

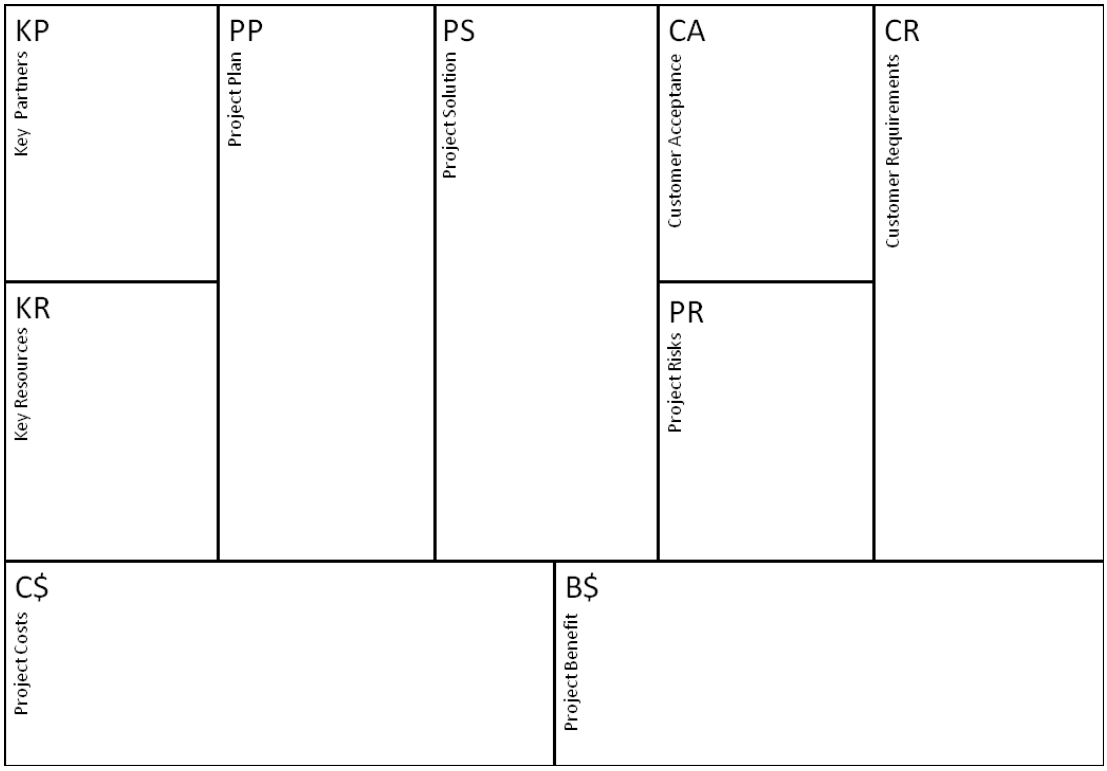

Figure 2 The Project Canvas

Customer Requirements

The Customer Requirements are what the project is about. It is a statement of the Customers' desired outcome for the project. The project's goal is to meet those requirements by delivering the outcome to the end customer, and so they define the scope of the project.

The first question here is what or who is the Customer? At first glance it is the person or organisation commissioning the project. They want the outcome to be achieved.

However, there also may be people and organisations that have an interest in the success of the project because it is aligned with their objectives. They may

provide grants or influence and in return be allowed some influence over the requirements. They will also be customers but would more likely be referred to as “stakeholders” (see Step 2: Identify the Key Stakeholders in the Seven Steps to Good Requirements)

The end customer may not have been the one who commissioned the project but may be the beneficiary. For instance, a Christian charity may be set up to care for elderly people. The charity may have commissioned the construction and equipping of a new home but it is the residents and staff who will be the users of the home, the beneficiaries or end customers. In this case the charity would be a stakeholder and, dependent upon the relationship, they may be a Key Partner and not a customer or they may be both.

Customer Acceptance

How do you know when the project is finished and everything that you wanted has been delivered?

The Customer Acceptance process is the means to confirm this. It is a process that checks that the Project Solution, the thing delivered by the project, meets the Customer Requirements and so the whole project has been completed.

Project Risks

The project has to negotiate the Project Risks in order to successfully deliver the solution to the customer. The risks are those factors which work against the project reaching a successful conclusion.

Project Solution

This is the specific solution that is chosen to realise the Customer Requirements. The project is about delivering that solution.

Project Plan

The Project Plan is the master plan, governing the deployment of Key Resources and Key Partners in the delivery of the Project Solution to meet the Customer Requirements according to the agreed time scales and Project Costs.

Key Resources

Key Resources are specific resources that are required to deliver the Project Solution. They may include, for instance, specific people, equipment, facilities and materials.

Key Partners

Some of the project activities may be outsourced and some Key Resources may originate from outside the project. These are provided by Key Partners. In some cases the project may result from collaboration between organisations.

Dependent upon the nature of the project there may be important stakeholders who would also be included in this section. Some stakeholders may, to all intents and purposes, be customers too. In this case the project may be achieving their objectives, as mentioned above. Examples of stakeholders are donor charities, the local authority, the Denomination, local community, neighbours etc.

Project Costs

These are the costs incurred from the elements of the project model.

Project Benefits

These are the benefits obtained from delivering a compliant Project Solution to the Customer. The benefits may be financial; for instance, revenues from delivering the project as a service or revenues resulting from the use of the thing that is delivered by the project, e.g. a factory is built as a project but the revenues arise from making things in it and selling them. Alternatively the benefits may not be financial at all. E.g. a conference event may be about developing skills for worship leaders. The benefits will be less tangible, for instance, the quality of worship in churches.

Using the Project Canvas

The Project Canvas provides a tool that allows a strategic view of the project to be "painted" on a single sheet. High level project strategies can be set out visually before detailed planning is commenced. As more information becomes available this strategic view can be updated. Without such a tool as the Project Canvas the project planning process has a tendency to fragment because as more detail is worked out, the high level, strategic view can become overwhelmed. Also the key information arising from detailed planning and ongoing management can become hidden from view. The Project Canvas provides a means to maintain its visibility.

Set up on a whiteboard, or large A2 sheet of paper pinned to a wall, the Project Canvas becomes a visual planning tool around which team members and stakeholders can meet. Strategies for each sector of the canvas can be compared and adjusted to match each other.

The process of meeting around the Canvas in review will inevitably generate new ideas and approaches that will improve the project outcome. Detailed planning can take place, drawn together by the Project Canvas. As it progresses it feeds back to the Canvas which now begins to be the pivotal co-ordination tool. For instance, the Project Plan in full is very detailed but here it can be summarised as a list of key milestones. Similarly Project Cost, which can comprise many detailed items, sets out the budget at a high level; Project Solution sets out key features; Project Risks list the high probability/high impact risks and the mitigations and so on.

The Project Canvas also provides a means of explaining the project to those who are not intimately involved and sets the agenda for that discussion. If it is used to track the progress of the project it can become a vital management reporting tool.

By way of example three types of project are summarised using the Project Canvas.

An Out Sourced Project: A New Church Building

For obvious reasons almost all of a New Building project will be outsourced. The essential players are listed as Key Partners. Although the significant work is performed by others there is still an overall Project Plan. It's just that the fine details will be left to the partners, however, key milestones should still be visible. The Project Plan is about how the client manages the project and includes other aspects of concern to them but not the Key Partners, for instance the opening celebrations.

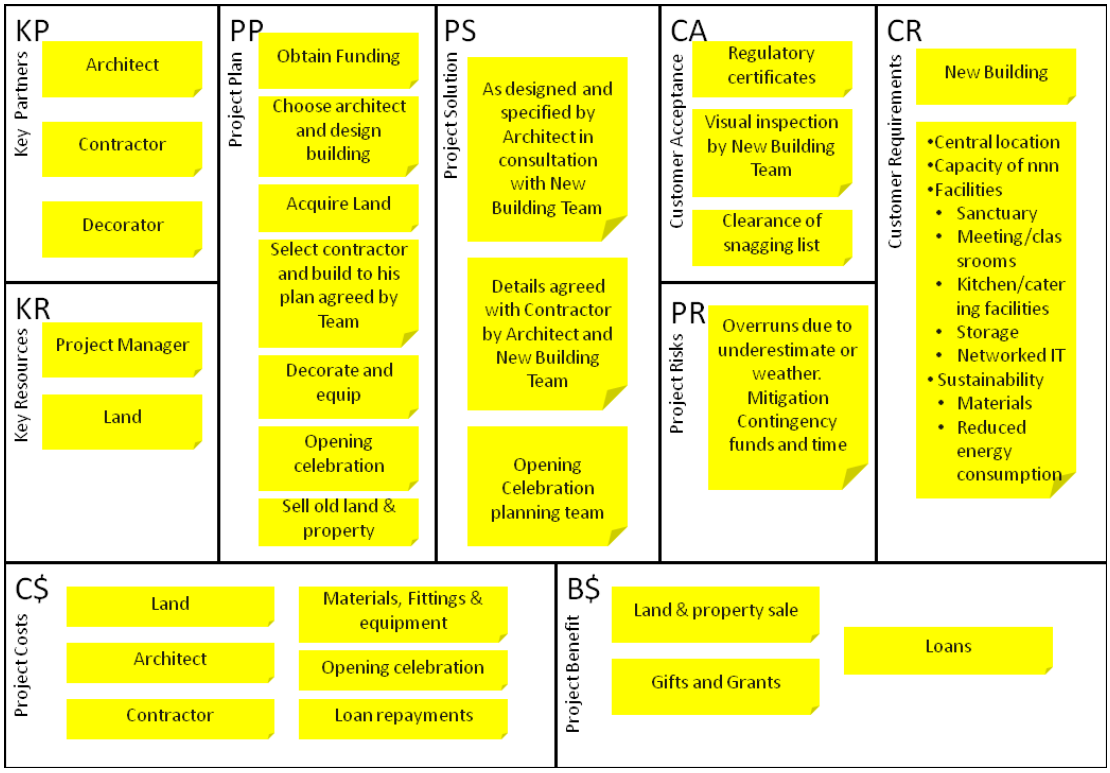

Figure 3 An Outsourced Project Canvas

There may be little to say against the Project Solution because its purpose is to deliver the Customer Requirements and a consultation and agreement process with the Key Partners is intended to ensure that. Beyond that it is captured in the detailed drawings and specifications generated by the architect and handed to the contractor. The Customer Requirements need to be clear and complete and may result from a mini in-house project all of its own.

Stakeholders in this example may be the community that church will serve. If the building were designed to serve the community on a broader basis the local authority may also be a stakeholder.

How the risks are handled will depend upon the contract with the Architect and the Contractor. In all likelihood they will boil down to defending yourself against overruns and non-compliance with the agreed solution.

Project Costs include all the cost elements at a high level while the Project Benefit is used to collect all the sources of incoming finance used to fund the project. It may also include the less tangible benefits that arise from use of the resultant building.

It is conceivable that such a project will in fact be a project of outsourced sub-projects. The Raising of Funds, the acquisition of land could for instance be standalone projects. However the building work could be a number of interdependent sub-projects. For instance: The construction of the building shell, the electrics, the plumbing, the heating and so on. In this case each of these sub-projects would have their own plans devised by the individual contractors and the overall project manager would stitch them together into one overall programme.

An In-house Project: A Web Site

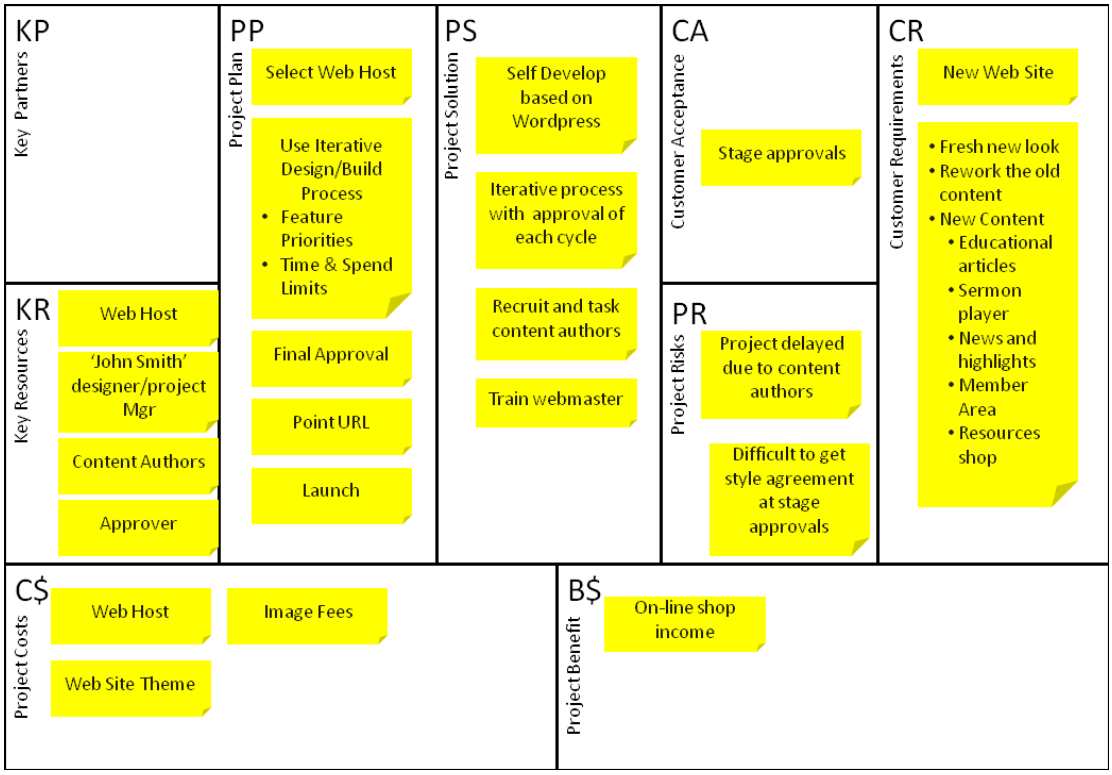

Figure 4 An In House Project Canvas

These days a web-site project will probably be outsourced but, given the available tools building them is within the scope of many, and so they may be completed in-house. In which case there are no Key Partners just Key Resources which may name individuals if they possess vital skills. The Web Hosting Company is a Key Resource and not a Key Partner because the basis of the relationship is likely to be a simple supply arrangement.

Even though it's in-house the Customer Requirements need to be set out clearly because there will almost certainly be an in-house customer who has commissioned the work. However, with such a web project it is possible that

no overall Project Solution is defined at the outset but an iterative prototyping process is used. This is sometimes referred to as a Rapid Application Development approach and is particularly suited to projects with a high level of visual content. In essence the developer interprets the Customer Requirements into a partial prototype which is then reviewed by the Customer. The customer's feedback is accommodated and the solution is reviewed again and so on. Thus the project continues in series of short phases, each phase building on what has already been achieved and each extension of functionality being reviewed and accepted. The cyclical process continues until the job is done.

Plainly it's difficult to build a building with this approach and likewise some technical projects don't easily fit this model. When the work is being paid for this approach may seem open ended and designed to empty your wallet. However, this can be controlled by establishing priorities and limits. The limits set the maximum spend and time while the priorities identify "must have" elements and determine the order in which features are added. It is these limits and priorities that essentially define the Project Plan.

The Project Costs are summarised and the Project Benefit lists revenues and income generated from the resultant web-site, in this example, the on-line shop. Whilst strictly not the income from running the project they do result from having completed the project. Consequently in the business case they will offset the costs.

An Event Project: Commissioning the New Building

The third model is a project that has no lasting result. It is an event plan. It is feasible, with a big enough sheet of paper or a whiteboard, to use the canvas as the only planning tool for the event. This event project could be seen as a sub-project of the above New Building Project.

The Customer Requirements set out what is required. The Project Solution sets out a response with specific details. The Project Plan lists the major tasks. Catering, for instance, is a specific aspect that is outsourced to the catering team because they have the necessary expertise and reliability. Project Risk represents the most significant risk of invited speakers not being available for which a "Plan B" is required.

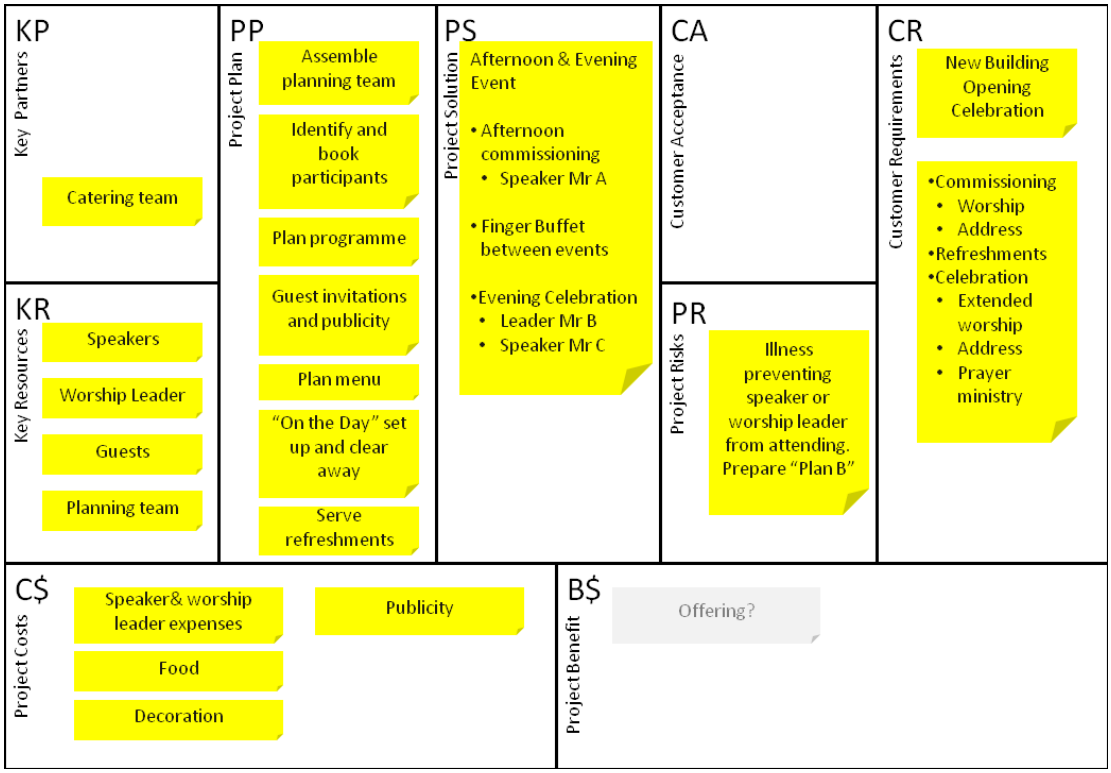

Figure 5 An Event Project Canvas

Dependent upon what is felt appropriate, the offering at the event may contribute to the costs of the building or for some other purpose. Hence the low key item in Project Benefit.

Project Sequence

The Project Canvas is concerned about the major elements of a project and their logical relationships. It lacks a sense of sequence, which is a core component of any project, setting activities in time, based on the order in which they must occur.

The diagram, Figure 6 A High Level View of a Project Sequence , illustrates the elements of the Project Canvas in sequence. Note how some elements run sequentially e.g Preparation of Customer Requirements, Preparing the Project Solution, while others run in parallel and contribute to each other e.g. preparing the Project Plan, the risk review and preparing the project budget. A milestone, (the green diamond shape) shows that the project is completed.

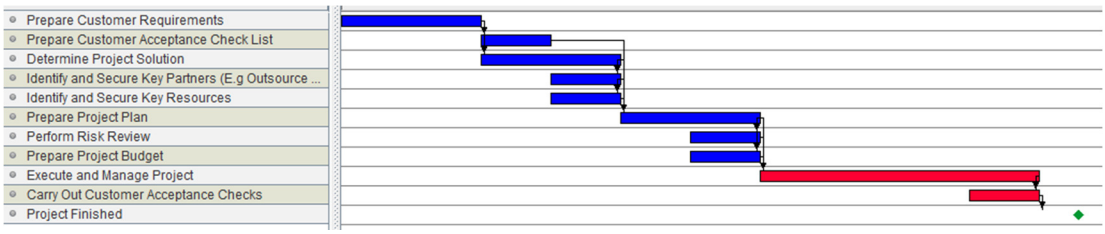

Figure 6 A High Level View of a Project Sequence

The diagram is called a Gantt Chart, named after Henry Gantt who devised it early in the 20th century and it is still serving well one hundred years later. As a project is planned each of the tasks in this chart would be planned in more detail, breaking down into their own network of sub-tasks. The actual duration of the project will obviously depend on what it is about. We will look at Gantt Charts in more detail later.

Ten Steps for Effective Project Management

This chapter was first published as the "Project Management Guide for Christian Leaders". It summarises the top ten project management considerations. Combined with the Project Canvas it provides an excellent summary and quick-start reminder of the content of this manual and the essentials of designing and running a project. These are visualised in Figure 7 An Overview of a Project Flow.

Step 1: Know with clarity what you are trying to deliver - Get the requirements right.

According to the UK Government the number one cause of project failure is "Lack of clear links between the project and the organisation's key strategic priorities, including agreed measures of success." This means that the project was not set up to deliver the thing that was needed and therefore there was no clear way of knowing when the project was finished.

In short it was not clear what the project was trying to deliver (scope). A knock on effect of this is that the goal of a project will change all the way through, causing it to cost too much money (cost) and take too long (time). Now, doesn't that sound like so many news reports on public sector projects of all kinds?

Although this is a comment on big projects, the first rule of any project, big or small, is to know exactly what is to be achieved. Then you can recognise when it has been achieved and know when the job is done.

Working out what you need

To do this you need to agree the project goals in detail with <u>all</u> the people concerned – the stakeholders. If this leads to multiple or overreaching requirements that cannot be reconciled, then break them down into separate projects. A church based example might be something like a desire to re-decorate a church hall that turns up the need to also refurbish the central heating, fix the roof and fit replacement windows.

Often our goals are stated in terms of how we think the solution will be implemented, not what it is we need to achieve, particularly if we have some knowledge of the area concerned. The temptations to merge what you want

to achieve with how you think it will be achieved are huge. Resist this at all costs.

TIP:
Remember that this step is about defining what you want not how you will achieve it, unless there is something about the method that is important.

Knowing that you have finished

To identify that the project is complete you will need to specify some acceptance checks to prove the goal has been achieved. For instance, if decorating a room you would inspect to see that everything has been painted with the correct colour and type of paint and that the quality of the finish is acceptable. These checks should be the last stage of any project and passing these checks means that the project is complete. There may however be checks that have to be performed en route in order to make sure that the project is on course. For instance the walls, ceiling and wood work have been sufficiently prepared. If they're not you cannot proceed until they are.

Step 2: Work out how to do the job - Define the Solution

Having decided what you are trying to achieve, the next step is to determine how this will be accomplished. The specific details of this will depend upon the task in hand and you may need the expertise of others to work things out.

It's not always the obvious solution that's best

Remember too that the obvious solution to the need is not necessarily the best solution. Our tram-line thinking tends to limit the range and type of solutions we consider. Taking time to work out alternative, creative solutions is worth the effort. When you have them worked out choose the most effective one and be sure all the stakeholders agree. For anything more than the very simplest task, write it down and get everyone to sign the final document.

Be sure the solution actually meets the agreed need

When it has been worked out, the solution needs to be checked against the statement of requirements. i.e what you want must be compared with what you can do. Any differences must be addressed and resolved. If this process is omitted then the project will certainly fail to deliver what you expected. A

compromise between the requirements and what will be delivered may need to be negotiated at this point.

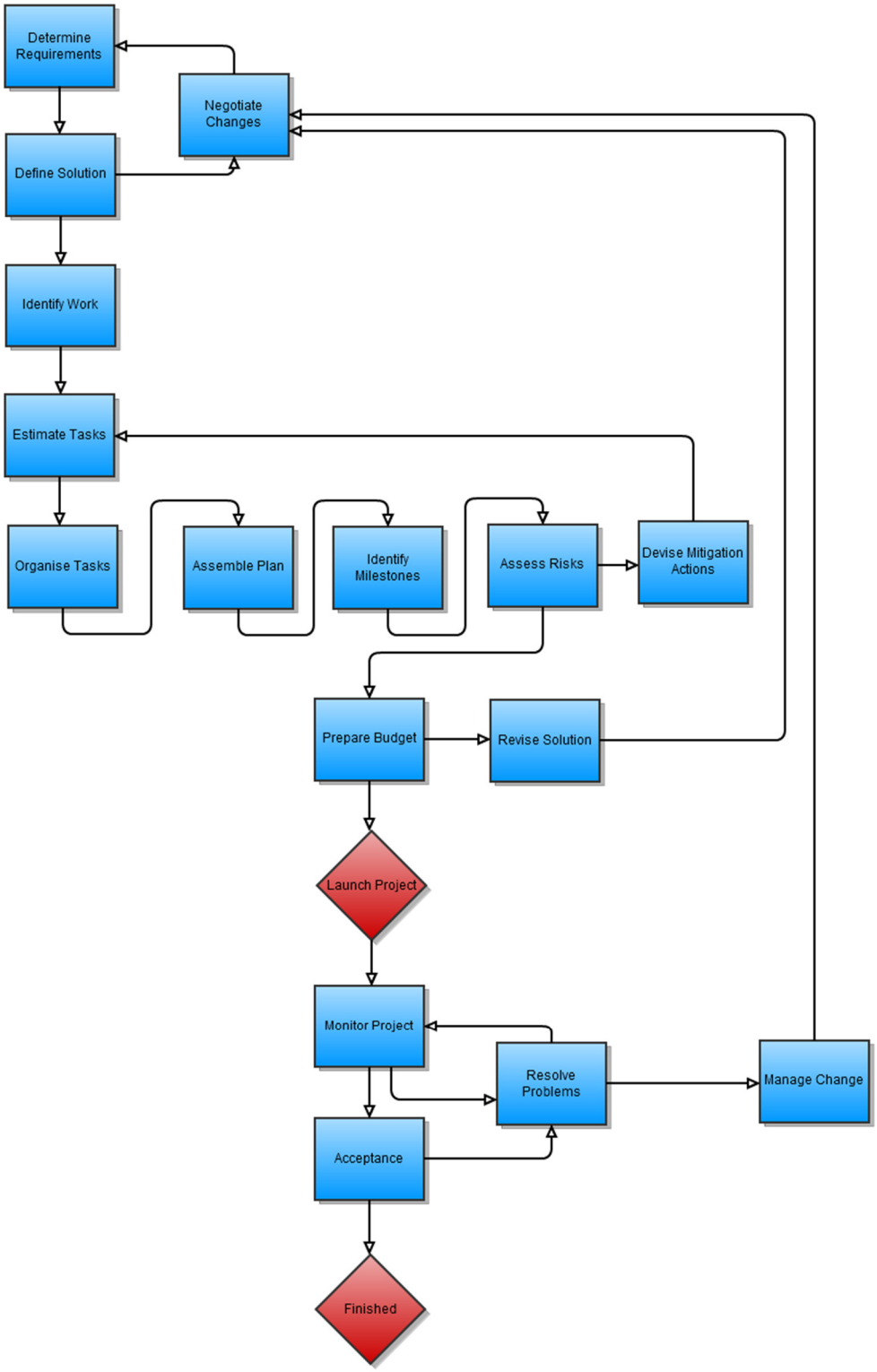

Figure 7 An Overview of a Project Flow

Write it down

The solution that will be delivered must be negotiated and agreed with all the affected stakeholders. In formal and complex projects the agreed solution must be written down and signed off by the key stakeholders.

TIP:
Even in informal situations it is helpful to write down the solution and get everyone to agree. This will protect relationships later on when memories have faded and people have forgotten exactly what was agreed.

Step 3 Identify all the work that needs to be done – Define the Tasks

Having decided what need is to be met and how the solution will be provided, all the tasks required to make it happen must be identified and defined. Look at each of them as a mini project and define the outcome of the task. It is obviously important to identify them all, otherwise there will be a big gap in the project somewhere. The result will be delays and additional cost in completing the project or possibly the final project goal might never be achieved. That is not an unusual outcome.

Don't be afraid to call on others

You may need to call upon other people with the necessary expertise to help with this stage. Alternatively you can simply identify tasks and subcontract them. You would do this for instance if you are refurbishing a church hall, say, and recognise that the central heating needs upgrading. You would simply go to an accredited central heating engineer or plumber.

Catalogue the tasks you need

Make a list of the tasks you identify. The information to be recorded will be determined over the next steps. For really small, fast, informal projects this may be overkill, just do as much as is necessary to achieve your goal within time and budget. Project Management software, like *Microsoft® Project,* or one of the free open source programmes, will keep this information but you need some expertise to use them. You can keep the list in a Word or Excel document.

In this step give each piece of work a name and write down its goal and outline the checks required to confirm that it has been completed correctly. This is important as you will add to this as you go along. Also add how much effort is needed to complete the task and identify the person who will be responsible for its completion. Do this even for outsourced or subcontracted work as this will become part of the subcontractor's work specification. Where the completion checks are going to be complex or need the agreement of several people they should be recorded in a separate document.

Don't forget to add the inspection or test tasks that demonstrate that the project has been successfully completed.

Planning complex tasks

Sometimes you will discover that you have defined a complex task, effectively a mini project that has to be split into sub-tasks. The process is just the same for these sub-tasks. Here you can use the task numbers to correlate what is going on. If the complex task was task number 7 and it was split into three sub-tasks they would be numbered 7.1, 7.2 and 7.3.

Step 4: Identify the effort and resources needed for each task – Task Estimation

For each task work out how many people are needed to achieve it and how long they will take. Identify any resources or supplies they will need. These will need to be procured and that may give rise to new tasks that can only be identified at this stage. (For subcontracted work you will need to check whether you or the subcontractor will provide these necessary items.)

Make the most of others' expertise

Again, you may need to call upon others with the necessary expertise to complete this stage. For subcontracted work you would require the sub-contractor to identify the effort needed to complete the specified work and provide you with a duration and price. Think through their proposal and make sure that there are no gaps or oversights. How much effort you put into this depends upon the magnitude and complexity of the work to be done.

Crucial Resources

People are a resource so specifically identify who will work on each task by name. This is important as their availability will need to be checked. As you will see later, the fact that an individual is needed to work on more than one task will affect the scheduling process.

Money is a resource so be sure to work out the cost of doing each piece of work and buying the necessary supplies.

Step 4: Understand the relationships between tasks – Link the Tasks

Having identified and described all the tasks, the next step is to understand how they fit together so you can work out the flow and timing of the project.

- Some tasks are sequential in that one must complete before another can commence.
- Some tasks can run independently of and concurrently with other tasks.
- Some tasks require supplies to be provided before they can take place.
- Some tasks may require the same people and must wait for them to be available.

Note down the relationships in the task descriptions by listing the previous (predecessor) and following (successor) tasks. Predecessor tasks are those that must have completed before this task can start. Successor tasks are those that cannot start until this task has finished.

Step 5: Put it all together - Assemble the Plan

Having completed the description of the individual tasks and understood how they relate it is time to assemble the tasks into a plan. For simple projects you might be able to work this out in your head but it's always worth putting it down on paper in a Gantt Chart. In essence this is just a bar chart. Use the x-

axis to represent time and simply draw left-to-right bars for the tasks, scaled for duration. This simple example diagram uses Excel for this purpose.

			Week								
Task No	Task Name	Who	1	2	3	4	5	6	7	8	
1	First Task	KJ									
2	Second Task	KJ,DF									
3	Third Task	DF									
4	Fourth Task	DF									
5	Fith Task	HB									
6	Sixth Task	SK									
7	Seventh Task	DF									
8	Eighth Task	SK,HB									

Figure 8 A Simple Bar Chart Network Plan (Gantt Chart)

Sequential tasks follow each other allowing for any parallel tasks that must complete before they can start. Two tasks that need the same resource cannot run at the same time. Don't forget to include any procurement and sub-contracted tasks.

The result: a network of tasks drawn to a time scale that represents the duration of the project.

Now you need to add the dates. Choose your start date and read off the dates for each task. You may need to move tasks which have constrained dates, e.g that sub-contracted central heating upgrade can only happen when the supplier is available or a key worker may be on holiday so his task may be extended by two weeks, say. This may force you to adjust the timing of other tasks. As illustrated, Excel provides a simple tool that can help you set out the project.

Step 6: Identify what could go wrong - Assess the Risks

With the best will in the world, seldom does everything run to plan.

This is what risk management is about; identifying the things that could go wrong and adversely affect the project. Doing this while you are planning the project means that your plan can include the mitigation of the risks.

Identify and describe the risks

The first step is to think through all the things that can go wrong e.g. team members get sick, the time needed for a task is under-estimated, tasks are not

fully understood and may need extra work to complete, the price of supplies increases and so on. For each risk identified:

- Describe the specific cause or event that might affect the task or project.
- Describe the specific impact it will have on the project if it happens.
- Rank each risk on the likelihood of it happening.
- Rank the impact of each risk should it arise.

Sidestepping risk

Based on the cause and the impact, determine how to avoid the risk or minimise its impact. These are mitigation action plans. The mitigation action plans aim to reduce the likelihood or impact of the risk but sometimes all you can plan to do is simply recover the situation if the risk occurs. In the latter case this may simply require the addition of a contingencies budget and perhaps extending the planned end date of the task or project. This would mean completing early and under budget if the risk did not arise. Build your mitigations into the project plan.

Risk assessment never ends

For lengthy or more complicated projects the risk assessment should be reviewed periodically, at least at the beginning of every significant stage of the project. If you run similar projects one after the other you will become familiar with the normal risks and can prepare a check list. However, every project is unique so you will also need to check for additional risks too.

Step 7: Knowing how far you have reached - Identify Key Milestones

Having :

- Clearly Identified the project goal
- Determined how you will know that the project has finished

- Identified all the tasks and determined their details
- Assessed the risk and identified mitigations
- Linked the tasks and determined the project time scales

The next job is to identify key milestones that can be used to identify progress.

A milestone is a point in the project when:

- A critical stage is completed or;
- Significant things have happened or;
- Key parts of the project are to commence.

Milestones may be, for instance:

- Payment points when the client pays you or;
- Points where you pay a contractor or;
- Points where approvals are needed, e.g. building regulation approvals for the foundations of a new church building.

The last milestone is of course, project completed.

Milestones would be used to report progress to interested parties.

As the project manager you will be interested in every task, not just the milestones.

Step 8: Knowing how much it will cost – Prepare the Budgets

The next step is to work out the full cost of the project. To do this, identify the costs associated with each task. These will include the cost of supplies,

services, subcontracts, people and any contingencies that have been added to address risk. The total budget is simply all these costs added up.

So you think you're finished

At this point you may think that is the budgeting job done, but its not.

To properly monitor the project, the project manager will need to know the amount he expects to spend on a periodic basis, e.g. week by week. Using the plan that shows when tasks happen, the planned spend can be easily calculated. Keep any contingency money to one side in this process.

This is a key tool in managing projects of any length or complexity. The determination of the expected cost and time to complete the project can be compared to the money and time available. If they do not match, the project is not going according to plan. Steps can be taken to address the problem.

Step 9: Getting to the end - Monitoring progress and costs

Projects are "living", ever changing things. Whereas the first key to a successful project is planning, the second is tracking progress in order to tame the tiger.

What's left still to do?

The vital question at any stage of a project, however, is counter-intuitive. It is not how much has been completed but how much is left to do.

The reason for this is as follows: During planning, an initial estimate of the work required for each task was made. When the task starts more knowledge about that task is obtained. This may reveal things to be more difficult than expected, perhaps a mistake has been made and so the task needs to be re-done or a change has been introduced.

The key to monitoring and managing a project is to always identify how much work is still to be done. This may lead to the need to review and modify the plans and costs, but if this is done proactively it may be possible to adjust how things are done, or reorganise the schedule to save the project cost and end date.

Compare actual costs against expected costs

Having collected the information on what it takes to complete the task, an actual cost to date and projected cost to complete the project can be calculated on a week by week basis. This is compared to the cumulative budget. It will allow the project manager to forecast the dates he expects the milestones to be achieved and also to forecast the total project spend. If problems can be identified early then action can be taken to recover the situation. If this approach is not taken the consequence is usually a huge surprise when the project does not finish on time, massively overspends and there is no time available to recover the situation.

When it goes wrong, and it will

When something goes wrong with the project, e.g. a risk affects a task and a milestone is threatened, then the mitigation actions, if planned well, will recover the situation and allow the milestone to be met. If some unforeseen issue has arisen then you will need to identify new mitigation plans to recover the situation and adjust the project plans accordingly.

Step 10: Hang on to your hat - Manage Change

Projects are inevitably subject to change, even when the best possible job has been done to define the requirements, solution and risks. People get sick, early work identifies unforeseen issues, external factors arise, risks come to pass; there is an endless list of reasons why project requirements and plans need to change. The problems with change arise when it is left to happen in an uncontrolled manner. Uncontrolled change kills projects and makes project managers ill.

Be vigilant; keep change under control

Part of the project manager's role is to assess potential change and agree with the stakeholders what to do about it. Many potential changes can be dismissed as unnecessary, many can be left until the project has completed and be addressed in a subsequent project. Some, however, have to be accommodated. These need to be fully assessed, a solution found, the impact on the project determined and the action plan agreed by all the stakeholders.

Reduce the opportunity for creeping change

Project members also need to guard against introducing change. It is easy to do things in a “better” but more costly way or accommodate a request because it “only takes a little time”. If that only happens once it may not be a problem. Ten small changes that need only one day to complete will be the equivalent of one larger, more costly change that causes vital milestones to be missed and the project to overrun and over spend. Team members must clear all changes with the project manager before they are undertaken.

Manage change in informal projects too

For small or informal projects, change still happens and needs to be agreed with all concerned. Even then it is worth recording any agreements in writing or email for the sake of the relationships concerned. With no malice intended, misunderstandings occur and memories fade. Simple statements of what was agreed protect relationships and allow friendships which would otherwise be tested to endure.

Part 2:
The Spiritual Project Manager

In the Christian context the project manager is in Kingdom service. The project has been commissioned so that His church or organisation is better able to fulfil its Kingdom purpose in obedience to God. In many cases the existence of the project can be traced back to direct leading from God to engage in some specific work.

This dimension means that the project stakeholders, the project team and the project manager must keep in sight what God is about and pay attention to His direction.

Seeking God's Plans

Whilst there are certain methods and approaches applied to setting up and managing a project the thing of first importance is that the project brings glory to and honours God. This is not to deny the usefulness of methods but, as with all other spiritual activities, it is God who must take priority.

In stark terms this means that a logical, process driven line of action may not be the right approach. Because of the way we function as people, in general terms, we have a tendency to fall back on processes, it helps us know what to do next and gives us the reassurance of a familiar framework. The danger comes when this reliance on process, rather than faith, dominates our service. So, if God is doing something new then we need to be aware that our processes may hinder our service.

Being process orientated is probably very true of the kind of people who have an aptitude for project management. Similarly, it may be true for people who are expert in their work. The expertise has a tendency to direct activity. This issue means that it is possible to faithfully begin a work that has been clearly instructed by God but do it our way when God has something different in mind.

The Project Manager's Burden

One of the banes of the project manager's role is stress and anxiety.

The project manager is responsible for "delivering the goods" to time and cost but is totally reliant upon others to achieve this. Because projects call upon expertise from a wide range of sources, in both organisational and volunteer-orientated situations, the project manager often actually has little direct authority over the team members but carries most, if not all the responsibility for achieving the project's goals. This alone is a recipe for stress. More than that, there are also any number of things outside his control that can knock the project off course.

The project team is also made up of people; where there is a group of people there will be strong views and disagreements. All of this develops a stressful environment, albeit one that can deliver a terrific sense of achievement when the project has successfully run its course.

So, projects make for fertile ground in which stress can develop. Stress compounds itself in that it generally works against clear thinking, creativity and good decision making, so making things more difficult and thus feeding itself.

As Christians, we are so fortunate in that we have someone to turn to: God, whose steadfast love is from everlasting to everlasting, and who promises to give us wisdom if we ask, without finding fault. (James 1). One on whom we can call in prayer. He is so willing to provide us with insight and wisdom, if only we will call on him.

Understanding God's Plans

As we have seen, the project manager is concerned with plans; the making of them and their execution. He also has a responsibility to lead people in that process. That means a project manager cannot be a "fence sitter". People are looking to him to guide their direction and enable them to achieve their full potential, honouring and glorifying God as they contribute to the project's outcome. That is his commission. The Bible has some interesting lessons about this process.

Is it God's Work Done God's Way?

Consider Joshua for a moment. He was commissioned with God's objective, to take the Israelites into Canaan and possess the land (Joshua 5&6). He began that process using what seemed to be appropriate methods. He sent in a team to spy out Jericho and having crossed the Jordan he personally went to reconnoitre Jericho. A necessary prerequisite to forming his battle plans. It would seem that he had not stopped to consult God sufficiently, why else would he have asked "the Commander of the Lord's Army" whose side he was on? The answer he got was "Neither".

Wow! That seems strange, God is on neither side! Well, that is what you might think if you are looking at achieving God's objective you own way. The truth is that it was not down to Joshua to work out how to take Jericho. It was however, down to Joshua to fall in with his Commander's plans. It was Joshua who was on God's side, not the other way round. Joshua led Israel to play its part in God's plan and God acted.

What might have happened if Joshua had decided to use the conventional strategy of military siege? Would God have destroyed the walls of Jericho? If he had would Israel have been in the right position, ready for action when they fell?

Think on a moment to the battle for Ai (Joshua 7&8). Joshua, it seems, had not quite grasped what was going on. He followed his conventional military doctrine of reconnoitring the target and then making and executing his plans. His spies told him "This one is easy, you don't need to send everyone up against them." So Joshua sent only 3000 men who were thoroughly trounced by the men of Ai and 36 Israelites died.

After lying on his face in the dust for a day, wringing his hands and his heart and complaining that God had let them down, God spoke. "What are you doing down there?" God in his grace went on to explain that Joshua and Israel had been defeated because some loot had been taken from Jericho against his express instructions and then we have the episode of Achan being exposed and punished.

Why did the attempt on Ai fail? Was it because of Achan or because Joshua did not consult God before hand. Surely had Joshua not rushed to use conventional military methods he would have turned to God and consulted Him. Although this is speculation, it is hard to see how God would not have told Joshua of Israel's disobedience and Achan would have been dealt with. God would have explained His plan for the assault on Ai, as He now did after the event. Having honoured God and been obedient to His instructions the only attack on Ai would have been successful.

What can the project manager draw from this episode? Be careful to seek God and follow his plans. Doing God's work, which Joshua was seeking to do, with the conventional outlook of the world is not what God calls Christians to do. God's work needs to be done God's way.

Whose Plan is its Anyway?

Sometimes God reveals his plans a step at a time. Sometimes this is his strategy to allow us to walk in faith, sometimes it may be because we leap to conclusions and he corrects us only when necessary.

Ponder Pauls' second missionary journey (Acts 15 &16), the one where he ended up in Macedonia after having the vision of the man calling for help. It started out with Paul and Barnabas deciding to re-visit the churches that had been planted on Paul's first journey. It is hard to conceive that Paul had not brought his plans to the Lord, seeking his will in the first place. However, when they got to Asia, where they obviously wanted to preach the gospel they were kept from doing so by the Holy Spirit. When they tried to leave Asia to enter neighbouring regions they were again prevented. Eventually Paul had the vision of the man in Macedonia asking for their help. So off they went.

For whatever reason God only showed Paul and Barnabas his plans a step at a time. Maybe they had discerned God's leading for Asia but misinterpreted it believing they were to preach there rather than simply pass through. Maybe

God had only directed them as far as Asia in the first place and they assumed the purpose.

The reasons are speculative but what is plain is that they had made plans in line with their understanding of what God wanted, however those plans had to be changed at God's direction. This means that the Christian project manager needs to keep in tune with God because maybe he will need to change his project plans.

The question to keep in mind is "Whose plan is it any way?"

Is there Room for Methods?

Consider the construction of the Tabernacle. God gave Moses two men, Bezalel & Oholiab (Exodus 31), whom he had equipped with the necessary skills to make the Tabernacle and its content, to lead others to assist them and manage the whole process. God had also skilled the other contributors in the necessary crafts.

Bezalel & Oholiab and their project team, had all been equipped in the necessary skills but items still had to be designed in accordance with God's requirements, people had to be assigned work, materials had to be procured, work had to be carried out in sequence; a project had to be managed. It is plain, therefore that some of the skills God provided must have been in the use of project management methods. Also the craft work, for the sake of consistency and quality, would require groups of people to use the same methods and techniques.

So we can conclude that there is room for methods, provided they are appropriate and the processes are submitted to God's direction and control.

Seeking Wisdom

A vital tool for any project manager is wisdom.

Not only does he have to contend with the things just discussed but often the circumstances that he must deal with are not “black and white”, but need responses based on judgement. Sometimes there is no “right answer” but a decision must be made from a selection of what seems to be equally good or bad possible choices. It can be that the problem is choosing the least bad option. When in God’s service this means that the project manager needs a wisdom that comes from God and not the world.

That is not to say that methods have no place, they do but they need to be carefully chosen to avoid adopting approaches which do not honour God. Basing one’s approach on worldly philosophies is not the course of action we need.

Many methods are neutral with regard to God’s wisdom and direction. Most of the project management disciplines that we discuss are examples of such neutral methods. There is also wisdom in using them as an aid to help us avoid or overcome weaknesses and failings.

However, we are reminded in the Bible that God’s foolishness is greater than man’s wisdom (1 Corinthians 1:25). More than that, often man’s wisdom is opposed to God because of man’s natural and inherent animosity towards him (Romans 8:7). This is why careful consideration is needed in order to be certain that we are not basing our path on human philosophies or our own outlooks and whims. That is a route that leads us to attempting to do God’s things our way, and that never works out best.

God promises wisdom to those who ask and more than that he promises to do it without reproach, without finding fault (James 1:5). This is just as well as the project manager will need all the wisdom he can get, and where better to get it from than our loving Father? This process obviously requires both prayer and faith. Prayer as we seek God and faith because wisdom is a quality that enables us to alight on the best decision and approach rather than an instruction simply to be obeyed. This, I think, is why James goes on to talk about asking for wisdom in faith. Once we have asked God for wisdom we can carefully consider the issue and trust that God will give us that guiding wisdom when we make our choices and decisions.

Dealing with Anxiety

Writing to the Philippians, the Apostle Paul tells us virtually all we need to know about dealing with anxiety. He sets out a spiritual approach to anxiety that has helped me so often. In Philippians chapter 4 he writes:

> *The Lord is at hand; do not be anxious about anything, but in everything by prayer and supplication with thanksgiving let your requests be made known to God. And the peace of God, which surpasses all understanding, will guard your hearts and your minds in Christ Jesus.* (ESV)

This passage leads me to:

Consider the nature of my anxiety. If it's settled, set in like one of those British cold grey days that rains and rains, then I view "Do not be anxious about anything" as an instruction from God to which my settled anxiety is in contravention. Sin will impede our communion with God and disrupt the peace we have with him. And in moments of great stress and anxiety they are the two things that we need most. Therefore, I recognise my anxiety for what it is and confess it as a sin. Then I can rely upon God's promise in 1 John 1:9 to forgive the confessed sin and to purify the confessor from all unrighteousness, albeit needing the Holy Spirit to help us walk in repentance.

In stressful situations we don't always cover ourselves in glory and so if any other sin emerges we must confess that also. Often in some way this will be related to anger and pride. I am sad to say that this can take some time and be quite a battle to sort out with our loving heavenly Father.

Next, with "prayer and supplication and thanksgiving" I tell God all about it, seeking his guidance and his specific intervention in the situation. Thus I make my requests known to God, through listening prayer so my requests may be in line with his will.

Then I ask him to grant me that movement of the Holy Spirit that brings that promised peace and keeps my thinking and emotions anchored in Christ.

I must confess that, in my experience, it is rare that the Father does not then grant that peace which surpasses all understanding. So often, I quite quickly see the answers to my requests, provided that they have been in line with God's direction, and the situation is resolved. Some issues, by their very nature, take longer for the resolution to be observed, but in that process that peace from God is so essential.

My experience of God's work in me and my situation, often in the small hours, leads me to recommend this approach as essential for all Christians, but especially those whose commission has turned into a burden and a battle.

The encouragement we can take is that God is with us as we seek to do his work, all we need do is stay close to him and seek his guidance and wisdom, avoiding the temptation to do things in our own strength and in our own way.

Part 3:
The Christ-Centred Project Team Leader

Projects are about people; without them the project will never happen. Thus the project manager's role is as much about leading people as it is about managing the project. There are many leadership approaches out there but, even in the Christian field most are based upon secular philosophies. Some are simply not at all close to a Godly view, while in others the reflection of God's image can be more readily seen.

Christian leaders have an exemplar in Christ. He chose and led his earthly team, a rag-bag of diversity, a motley crew of uneducated men, developing them to become a team through whom he was pleased to change the world and bring the Kingdom of God to reality. He did this his way, reflecting his character as the Son of God and the Servant King, and in so doing he established a model of leadership that cannot be surpassed.

The Christ-Centred Servant Leader

Jesus was a leader of men operating in the context of the Kingdom of God. He was a servant leader who was concerned that those he led would fulfil all of their potential as they served God's greater Kingdom purpose. He did not engage in the exercise of power over people nor did he use the carrot and the stick. His leadership was also not about his personal self-esteem, position or status in the world. If it were, the outcome of the temptations would have been quite different.

As a leader, Jesus demonstrated his character time and time again and was concerned for those that he led. When he said to his first disciples "I will make you to become fishers of men" (Mark 1) he spoke of a relationship with them that would take time to achieve. He saw what they would become and committed himself to enabling them to fulfil that potential. He promised to lead them into a role that that would fulfil God's higher purpose.

In the famous foot washing episode (John 13) Jesus exchanged his outer garments for a towel and demonstrated that, although he was the Son of God, he was the Servant King, and that his role was not only to serve God but also those that he led. He challenged his disciples to follow this example.

It is this character of Christ that must underpin the nature of the Christian leader. It is a character that will not be found at the heart of any secular leadership philosophy, not even the world's form of servant leadership. It can be argued that this may be Christ-like in nature but it is not Christ-centred.

The primary goals of Christ-centred servant leaders are twofold: Firstly, to serve God by contributing to the fulfilment of his higher purpose through the enterprise in which they are engaged. Secondly, to serve those that they lead by enabling them to achieve their full potential for the Kingdom in that common and shared service.

In the case of the project manager and the project team, the project represents that shared enterprise which is to contribute to God's Kingdom purposes. The project manager's role is not to adopt a "command and control" philosophy to contain and constrain his team but to facilitate their release to achieve their full potential in their common service. In achieving that full potential the project team will voluntarily become fully engaged and committed to the common task. They will desire that their work will be as good as it can be and they will work collaboratively, supporting each other in that quest and so find satisfaction. They will seek and find creative and

excellent solutions to the challenges and problems which may arise and which may threaten to compromise the desired outcome.

This vision may at first seem unrealistic and fanciful; however it is achieved on a daily basis by those whose leadership style is modelled on Christ.

You can learn more about Christ-centred servant leadership at http://christian-leadership.com and by reading "Culture Craft" by Rick Sessoms and Colin Buckland, the ebook is available via the same web site. Another good exercise is to review Mark's Gospel looking at the interaction between Jesus and the disciples, seeking to build a big picture view of how they were developed by Jesus. Also the classic Servant King passage in John's Gospel chapter 13 is well worth studying.

Also, Growing the Servant Heart is an on-line, Christ-centred servant leadership development programme. It is provided free of charge at the Christian Leadership Academy http://academy.christian-leadership.org/ .

The following sections overview some of the skills required by the Christ-centred servant leader.

Developing the Team

In order to achieve their full potential, the group of people who form the project team must be built into a team, otherwise it will simply remain a group. In a group the members will hopefully seek to perform to the best of their abilities but it will be according to their own priorities and preferences. It is not to say that they will not try to do good work, it's just that within the constraints of the project plan they are individually focused on doing the best they can. This individual focus inevitably generates tensions that will tend to militate against complete success. Also, in a group, disruptive behaviours can emerge which tend to remain unresolved and which generate conflict and cause it to be less effective than the sum of its members.

In a servant leadership culture, team members will be committed to serving each other because they recognise that a collaborative approach is the best way to ensure that the project is successful. They will be willing to support and assist each other in attaining that goal of achieving their full potential, both individually and collectively.

To achieve their full potential the project team needs to operate as a coherent and cohesive body. The project manager who is a Christ-centred servant leader will be concerned to achieve this. In his book "The Performance Factor" (Broadman and Holman Publishers), Pat McMillan identifies six attributes of a high performance team which conforms with the ethos of Christ-centred servant leadership.

Figure 9 Team Characteristics

Alignment

Alignment is about every team member being committed to a common, shared goal. This requires a clear purpose for the team, which is essential in achieving a 100% commitment, from each individual team member, to realise their shared purpose in a coherent way. The team individually and collectively must understand the specifics of the purpose and be collectively involved in the process of shaping them. This helps create ownership of the purpose. The team member's commitment can then become practically demonstrated by a desire and willingness to cooperate. The team becomes positively engaged in the achievement of its purpose. The project manager needs to foster this level of commitment. It may be best achieved by engaging the team in analysing its purpose and collectively setting out its vision and goals.

It is essential that the purpose itself is clear and unambiguous; relevant to both the reason for the existence of the team as well as the individual members. It must be significant and worth the effort; urgent in the sense that it needs to be met and motivational so that it inspires and focuses the team – they want to be part of it.

Alignment with the team's purpose and collaborative working are the subject of deliberate choices by each individual team member. Because they have to make this deliberate choice team members are volunteers. They volunteer to be a part of the team, even when they may have been assigned by their boss.

Crystal Clear Roles

In the context of a project these roles refer not only to the individual's tasks as in delivery of the project outcomes, but how they work together with regard to the many other implicit aspects of belonging to a team. For instance collective problem solving, peer reviews, coaching, back-up, conflict management, communications, conduct of meetings and support for each other and so on.

Generally, roles should not simply be assigned. Team members need to collectively understand the capabilities that exist within the team and arrive at a consensus as to how they should be deployed. Typically team members will be in the team because of their ability to contribute to the achievement of the purpose. In this respect their tasking may not be negotiable; however, the

roles they perform in the “off-task” functions of the team can be collectively agreed.

Clarity is required in the minds of the team as to exactly what is the role of each member. This requires well defined boundaries, responsibilities and accountabilities and with that well defined interactions between the team members. Roles must be defined so as to contribute to the achievement of the purpose avoiding both overlaps, leading to duplication of effort and turf wars and gaps, those black holes into which things just disappear.

Team roles must be both compatible with the abilities of the assigned team member and complimentary with other roles to minimise conflict. They must be understood and agreed between the team members. To this end it is essential that team members understand how they each function best in a team.

Another factor worthy of mention is that the tasking of a team member not only needs to be in line with their abilities but also their aspirations and aptitudes. Mismatching on these last two counts can lead to significant demotivation and with that quality and productivity can be compromised.

Accepted Leadership

For a team to achieve with excellence it requires clear and competent leadership to facilitate and orchestrate the achievement of its goals. More than that, each team member again has to be a volunteer; they have to choose to allow themselves to be led by the leader. This requires that the leader be perceived by the team members to be both competent and have integrity.

A servant leader will also allow task leadership to be provided by the individual team members who have the necessary competence and capability to guide on that issue. Once more each individual team member must make the voluntary choice to follow the task leader. Thus, effective leadership at any specific time is not simply based on a static position but by a dynamic response to the encountered need and individual role. The servant leader’s style might be summed up as being facilitative and not controlling.

Effective Team Processes

Team processes cover both the task oriented and the off-task processes. The task orientated process may be predefined but it is necessary to have worked out how they will be used by the team. The off-task processes can be collectively worked out by the team and are about how the team chooses to interact and function as it makes decisions, solves problems and resolves conflicts. High performance teams seek to define and design simple and straight forward process and continually review effectiveness and challenge themselves to improve.

The processes are a crucial vehicle that allows the team members to collaborate, be interdependent and agree to be mutually accountable for achieving the team's purpose. Again they have to volunteer themselves to this. In a high performance team the processes are not about individual team members simply doing what they do, but working together in new ways so that together they can outperform the sum of their individual contributions.

Effective processes along with team member competence and integrity (i.e. they can do what they say they are capable of and they do what they commit to) foster trust between team members. Trust is important in a team as it is the currency of cooperation. People rely upon those in whom they trust and do the job themselves if they lack trust in another. Collaboration and cooperation allow the team to achieve exceptional performance, achieving their full potential which is a goal of the servant leader.

Solid Relationships

Solid relationships are essential but they are not about friendships but rather about being able to work together well. They are about developing a trust in and appreciation of fellow team members. Such relationships will allow the team to choose to risk being interdependent and to withstand and respond successfully to setbacks, misunderstandings, and conflicts as well as plain, simple bad and ugly days. It includes developing camaraderie as they learn to serve effectively their common, shared purpose, facing challenges and overcoming obstacles.

Effective relationships in a team require that each member understands how

they and their colleagues behave in their team situation so that they can establish how best to work with each other. The use of appropriate personal inventories shared amongst the team can be very helpful to members in understanding each other and working out how to relate effectively.

Excellent Communications

Excellent communications is a pre-requisite for all the other team characteristics. To function as a high performance team, members must understand not only how to share information in a way that others can receive it but also to assume a responsibility for ensuring that they understand the communications that they receive. Recognising and taking into account the behavioural style of fellow team members is vital for effective communications. We will look at communications skills in more detail later.

The process of building these characteristics into a team requires that they take stock and undertake an appropriate plan of action to enable them to achieve their full potential in each area. This is necessarily a process of individual steps which inevitably takes time. As the team works, evaluates, learns and applies its learning it will improve in performance as it migrates towards its goal of working more effectively, more collaboratively and refocusing lost energy on achieving its purpose. It is the role of the Christ-like servant leader to help the team achieve this goal.

Being a Leader of People

It is often assumed that leading people is an inherent capability of anyone who manages people. Alas it is not. A survey conducted in 2010 by the UK's Chartered Management Institute showed that only 14% of the UK's managers were good at this. The scariest thing was that 44% believed they were really good at it. So overall 86% were not good leaders with almost a third lacking the abilities that they believed they had.

Some argue that being a leader is something that one is born to, may be that is true for the most charismatic of leaders but leadership skills can be developed. They need to be, because a range of studies show that there is a very high correlation between the best performing teams and leadership excellence. These studies also show that team performance falls away quickly as leadership excellence declines.

What does this mean for the project manager? Simply that, because projects are about people, project managers need to develop leadership skills. The best and most effective leadership skills are those of the servant leader. Traditional command and control management approaches not only fail to get best performance they also view people as cogs in the machine, commodities to be used and replaced; not a place the Christian leader really wants to be. So, if you are going to be a Christ-centred servant leader, what people leadership characteristics do you need to develop?

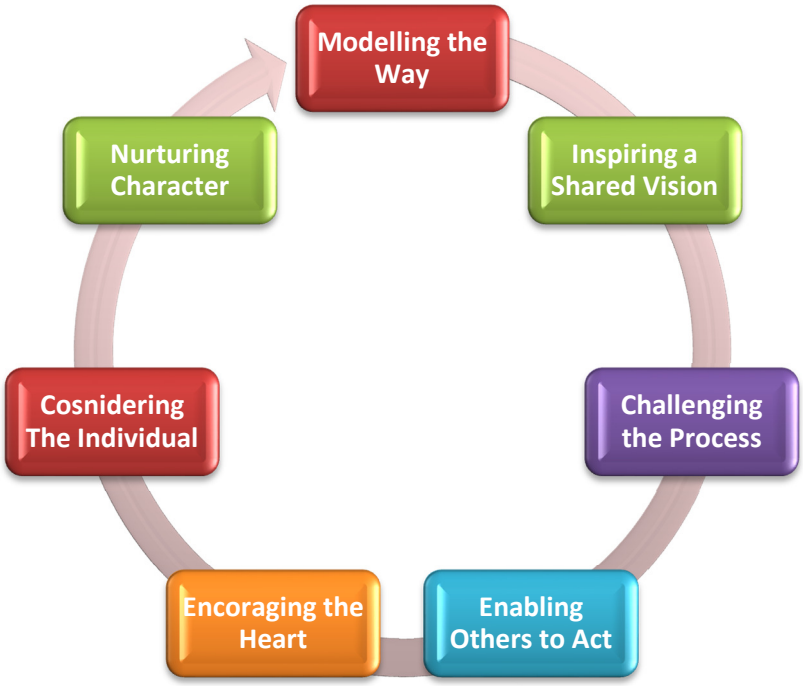

Figure 10 Exemplary Leadership Characteristics

These seven characteristics can be seen in exemplary Christ-centred servant leaders. The core five were observed by James Kouzes and Barry Posner and later extended for the Christian environment by Rick Sessoms.

Modelling the Way

There is phrase that is heard from time to time "walk the talk". Another in a similar vein is "Practice what you preach". This is what Modelling the Way is all about; consistency between what a leader says and does; the values that they proclaim versus the values that are evidenced in their behaviour. This coherence is the foundation of integrity and trust, both of which are vital to the leader because they are the basis upon which the team chooses to respect their leader. And a leader without the respect of his team is leader in name only. Thus modelling the way is vital to the Accepted Leadership principle in developing an effective, team. More than this, for the Christ-centred servant leader, integrity is a vital witnesses to the indwelling life of Christ and personal values based on Biblical principles.

Often there are two sets of values at work, the declared ones and a set of hidden ones. It's not that there is necessarily any deliberate duplicity at work it's just the every person has their own ingrained attitudes and outlooks to which they are oblivious. These ingrained, hidden values tend to unconsciously workout in one's behaviour. It's when behaviour does not match the declared values that problems arise and people do not actually "walk the talk". It will pay dividends for you as a Christ-centred servant leader to take time to review your values and compare them to how you behave. The challenge is then to work out what your real values are and align your behaviour with your declared values. You may need to ask someone you trust to help you with this.

Inspiring a Shared Vision

A vision is important for every team and every leader. It is a statement of direction, a signpost pointing to a destination; an image of a possible and desirable future. Such a vision implicitly derives from dissatisfaction with the present. This dissatisfaction does not necessarily arise from a negative view of the present, but often from the recognition that things could be better still.

In the context of the Christ-centred servant leader serving the Kingdom, this vision must originate with God, it is about His ideas not those of man. Although this God-originated vision will be expressed in our terms as we seek to verbalise and communicate it.

Vision is vital in aligning a team because it points to where the team is going. It is the captivating essence of their common and shared goal, the thing that captures their attention and inspires them. The vision must be owned by all those going on the journey with the leader and ownership leads to commitment and engagement. It is one of the factors that enables the team to choose to volunteer to be led by the leader.

Involving people in the process of working out and expressing the vision are key strategies in gaining their commitment and buy-in.

Challenging the Process

The most effective leaders are not centred on maintaining the status quo but they seek to do things better. In this sense they challenge the current situation looking for better, more effective ways of achieving the vision. They encourage this outlook in their team members and are ready to receive their thoughts and observations, following through on the good ideas. Again this needs to be a consecrated process because in God's kingdom service we seek not only to do his work but to do it his way.

As discussed earlier, it is worth remembering that in many situations, the processes we might use are essentially neutral with respect to God's leading. However, important factors such as best use of scarce resources or displays of grace are important from a Kingdom perspective and may be the stimulus for improvement.

Enabling Others to Act

The Christ-centred servant leader is a facilitator in the sense of enabling his team to achieve their full potential and successfully conclude their task. Such a team is a collaboration between the team members who become committed, not just to the task but to each other. They support each other and work together coherently to collectively achieve their goal. The leader's

responsibility here is to encourage this and empower the team to work in this way.

The leader is responsible for ensuring that team members have what they need to do the job they are being asked to do. The leader also acts as the representative of the team to others. In the case of the project manager this means the stakeholders and customers.

The Christ-centred servant leader will take special care to encourage a collaborative character in his team, encouraging the development of solid relationships, then identification of clear roles and effective processes. Their approach will be in stark contrast to any "command and control" style of leadership.

Encouraging the Heart

Committed people work hard, and this will be true of any truly committed project team. They don't set out to fail but to do a good job. All the more so when it is for the Kingdom.

Just as full time, fully paid team members have to volunteer to be led so the leader needs to avoid taking their team for granted. The leader needs to recognise and celebrate their commitment and achievement. This shows the team, and its individual members, that they and their contribution are valued. This is even more so for a team that includes volunteers; it encourages their hearts and spurs them on.

This is a solid Christian principle. The author of Hebrews writes in chapter 10 verse 24: "let us consider how we may spur one another on toward love and good deeds" (NIV) and Paul tells the Ephesians (Chapter 6) that "I have sent [Tychicus] to you …… that he may encourage your hearts. (ESV) and he writes similar things to the Thessalonians and the Colossians. Encouraging the heart is vital aspect of the work of the Christ-centred servant leader.

Considering the Individual

The members of the team are not cogs in the machine, nor are they simply members of the team, they are individuals. God cares for them as such and the Christ-centred servant leader reflects this care in the way they relate to

them. Their goal is to enable the individual to achieve their full potential for the Kingdom, so the leader will match tasks to aptitudes, abilities and importantly to aspirations. This means knowing the person and relating to them as an individual. The Christ-centred servant leader will also adjust their leadership and communications style to the individual and take account of cultural diversity.

Nurturing Character

In the Christian context Nurturing Character means that the Christ-centred servant leader has a responsibility to help his team members to develop and live out spiritual values based on Biblical principles. "Walking the talk" therefore demands that they make decisions and demonstrate values that are based on biblical principles. Because they are a role model, these values need to be applied consistently in their dealings with others. More than just living out these values, the Christ-centred servant leader will seek to help his team members develop and apply them in their conduct. In these ways they champion Biblical principles and values and encourage the spiritual development of others.

For the project manager, this may seem a far cry from completing the project on time and within budget. However, this is a vital responsibility of any Christian leader in any context. It is the one area that perhaps provides the deepest and most profound challenge to the leader but it is simply the working out of Biblical, Christian values and it brings things full circle to Modelling the Way.

Effective Communications

A key skill for any Christ-centred servant leader is to be an effective communicator, but more than that to be a communicator who takes the responsibility to ensure that those with whom they communicate understand them and vice versa. There is little room for the attitude that it's always the receiver's responsibility to ensure that they have understood. They may indeed think they have but how will they know that they haven't? If they haven't, how can they fulfil their potential and successfully contribute to the higher purpose?

Servant Leaders Take Responsibility for their Communications

The Christ-centred servant leader's goal is that others can achieve their full potential. Now assuming that our communications have some purpose then this goal means that as the speaker, the project manager must take responsibility for their listeners. Not only must they take responsibility for what they say and how they say it, they must also take responsibility to ensure that their listeners have understood.

What does it look like when we take responsibility?

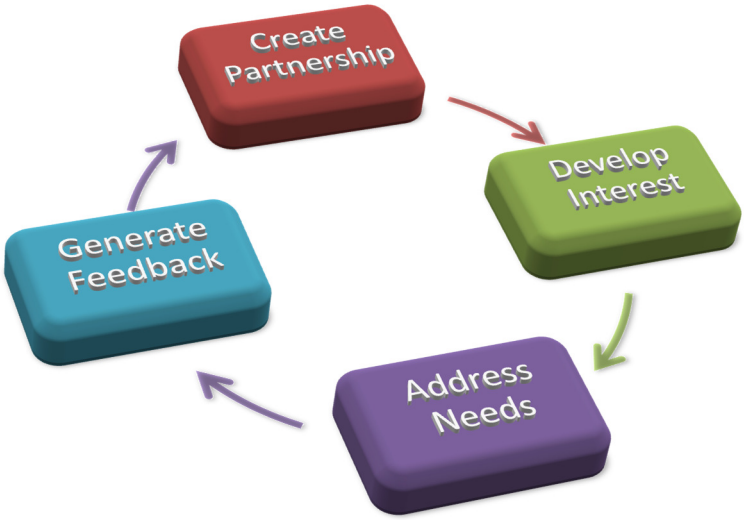

Figure 11 The Elements of Responsible Communications

There is partnership:

During the conversation a partnership that jointly owns the communication is developed, in other words monologue is left behind in favour of dialogue.

Interest is stimulated:

The listener's interest is engaged by the way the project manager constructs and delivers what they have to say. Considering learning styles can be important here.

Needs are met:

The listeners' needs are addressed and their important questions are answered e.g. What do they need to know to successfully act on what they learn?

Feedback is obtained:

There is feedback from the listener that steers what the speaker says , how they say it and confirms understanding. Feedback needs to be invited, perhaps using open questions.

This model immediately highlights that listening is important too. Because communications is a two way exercise, responsible listening is as much an effective communications skill as is responsible speaking. Without it feedback cannot work.

Servant Leaders Make Their Communications Effective

What does it look like when the project manager takes responsibility for the effectiveness of his communications?

The Servant Leader avoids flooding the listener with words

Frequently people are anxious, self-focused or so short of time that they spew words out like a burst dam. Sometimes they are afraid that if they pause for breath the listener will assault them with an objection or just tell them to go away. The result: they overwhelm the listener. Then when things are not understood or subsequently go awry they can be heard saying "Well I told them what they needed to know!" This is not the way of any who profess to lead in a style that would have been recognised by Jesus.

What happens to overwhelmed listeners? They neither have time to gather their thoughts nor are they able to find a way in to clarify the situation, to get more information or ask for help in understanding. The "communication" is a one way flow. The longer it flows the less relevant it becomes to the listeners who switch off.

What to do about it?

- Relax
  Don't get wound up about whether people have understood or not, just make sure that you have time to help them understand. Avoid being in a rush.

- Quality not Quantity:
  People can only take in so much information at a time so think out what they need to know, limit what you say and give them opportunity to ask questions.

- Follow-up:
  If there is more information to convey then organise a follow up session when everyone is prepared to go into the detail.

The Servant Leader avoids getting trapped in self-interest

The question here is "What is more important to you?" Would you prefer that your listeners understand what you are sharing with them and commit to an appropriate response or simply that you are able to dump what you want to say, in the hope that they can do something with it?

The latter path leads to the listeners switching off because you have failed to address their needs; your message will seem less than relevant to them and will tend to be ignored.

Key to engaging them is finding out what they think and what is important to them and addressing those issues. You will then have to adapt what you have to say accordingly. That is not to say you have to change things on the fly but rather draw things out or emphasise particular points in a way that addresses their questions.

What to do about it?

- Engage:
  Keep the conversation partnership in mind and draw the listeners into ownership of the conversation.

- Ask questions:
  This will enable you to see if you are getting your point or your information across.

- Invite questions:
  Do this as you go along. It will allow your listeners to enable you to tell them what they need to know. Give them permission to ask the question that they fear you will think is silly.

The Servant Leader looks for response

Communications markers are signals that your listeners give when you are attempting to communicate with them. In face to face situations it's primarily body language and tone of voice. These marker signals give you clues as to what your listeners are thinking. Being sensitive to them will help you steer a course that keeps them on-side and engaged. Ignore them at your peril.

Don't be so self-focused or unaware that you ignore the communications markers from your listeners. You won't get anywhere fast because you will miss the signals that say "We have had enough." "We don't understand." "Can you say that again please?" "We want you to stop." "I have to go now." And so on.

What to do about it?

- Avoid being self-focused:
  Think about and interact with your listeners as you talk with them.

- Be concerned for other people:
  Do your utmost to make them feel an important part of the conversation.

- Learn the physical signals:
  There are good books that can help you understand body language but some of it is very obvious. You won't miss it if you maintain your awareness of other people.

- Listen for the vocal cues:
  Communications markers are audible as well as physical. Listen for changes in tone of voice.

The Servant Leader doesn't assume understanding

There are any number of reasons why we may prevent people from understanding us. If we are self-focused or in a hurry it is very easy to assume that our listeners will have understood what we have to say. It may be that we are a "detail person" and simply overwhelm people with that detail, forgetting to provide any context or, we may be a big picture person who provides context and no detail. Then of course, there is whatever is going on in the listener's mind that means they miss the point, get the wrong end of the stick or are just unable to "tune in".

An extra dimension to be aware of is attempting to communicate cross-culturally. We may be speaking with people for whom our language is not their first language. Then issues of vocabulary, idiom and style can impede our attempts to communicate, even when we have everything else right. Whatever the reason, there is always the possibility that others do not fully understand what we have said, its implications and the need for action. The consequence is misunderstanding, confusion, incorrect action and even conflict, none of which come close to fulfilling potential.

Professor Wiio, a Finnish academic and Member of Parliament formulated a set of humorous laws of human communication. Essentially they boil down to: If it can go wrong, it will go wrong; if it can be misunderstood it will be misunderstood. Somehow the project manager must mitigate this universal tendency.

What to do about it?

- Keep it simple:
  Use plain language and avoid jargon, idioms and phrases that assume knowledge on the part of the listeners

- Make space for understanding:
  Speak in shorter segments so that listeners can assimilate what is said before you move on to the next idea. That will also provide scope for them to ask questions.

- Obtain feedback, ask questions:
  This gives listeners the opportunity to confirm understanding and seek clarification.

The Servant Leader accepts his responsibility to ensure that listeners have understood

"If they don't understand they should ask" may seem sensible, but it has at least two flaws.

The first is that in general, people tend not to ask out of fear; fear of looking silly or perhaps fear of you.

The other is that they may not fully appreciate that they do not understand. They may have missed or misunderstood something but it may all seem to make sense – until later that is.

Beyond the various issues already discussed, when things seem really clear to us it can be difficult to appreciate that people may not have understood or perhaps cannot understand. After all it is so obvious. However, it is in the project manager's interests to be as certain as they can be that their listeners understand what is being said.

What to do about it?

- Make understanding your goal:
  Measure success differently. Communication is only ever achieved

when the other person understands and can act appropriately as a result.

- Avoid assumptions:
  Many communications fail due to assumptions, especially the unwritten or unthinking kind. It's best to avoid them, declare them or test them. This means that you will need to thin them through.

- Partnership:
  Communication really only succeeds when both sides are in an equal partnership that allows understanding to flow. Encourage your listeners to participate in that partnership. Be aware that you may need to give them permission to join in.

The Servant Leader applies what is said to the listeners' needs

To maximise your engagement with listeners, what you say has to apply to them. If it doesn't then they will shut down and not take in what you have to say. If it does apply to them, then your job is to ensure that they understand. This is actually a special part of the feedback loop and may require you to ask questions to identify the information that they need.

- "What's In It For me?"
  "What's In It For me?" (WIIFM) is the key question that motivates interest. You must answer that question. Sometimes you will not know the exact answer unless you engage in dialogue with the listeners and that means asking questions.

- Things they need to Know
  In situations, where the listeners must act there may be things that they need to know but you have not told them. Dependent upon their situation you may not know what they need to know unless they tell you.

Servant Leaders Consider the Listener's Learning Style

Learning style affects how people are able to receive, absorb and integrate information, whether in a formal lesson or an informal face-to-face conversation.

If we can accommodate our correspondents learning styles when we speak with them, then our attempts to communicate are more likely to be successful. If you don't know the other person, then it's obviously difficult to specifically tailor how you interact with them but ponder the outlines given below and you will come close. Bear in mind each individual has a mix of learning styles.

There are several models describing learning styles and a full consideration of them can get somewhat involved but there are plenty of books to help you. The following, greatly simplified view of learning styles will enable you to structure what you have to say.

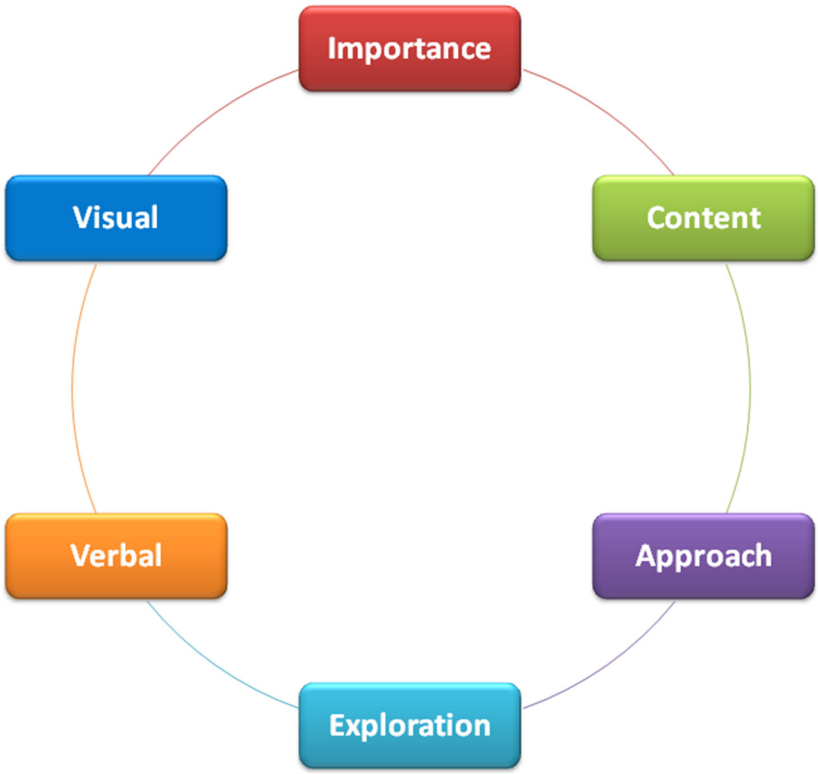

Figure 12 Learning Style Approaches

Explain why it's important

Some people need to understand the reasons why something is important. It's really part of the "What's in it for me?" issue. If you fail that test then they

will not be interested and they may well switch off because they are not convinced that what you have to say is relevant.

Convey what it's all about - content

Other people need to know "What is it all about?" These folk need to have a more theoretical view of the issue at hand because they can then work out the implications and requirements for themselves. Minimize that detail and they will find it harder to respond.

Set out how to do it - approach

Some people are pragmatists, "Just, tell me what you want me to do?" might be their request. They need to understand the practical, pragmatic process in which they are to engage. They may understand what it's about but need to know what is expected of them.

Encourage exploration

Others need to explore, they are experiential learners. They ask the "What if?" question. They need a challenge to go and do something and learn from the experience. They may need a pointer on how to begin.

Use words for the verbal learners

Verbal learners like the written and spoken word. They can take in what you say and process it all. Some may prefer the written word, others the spoken word.

Use images for the visual learners

Visual learners use images, pictures, charts, maps drawings and the like to express themselves and learn. They are able to visualise information and may find a "words only" communication more difficult to deal with. Note that issue is not to do with complexity of the information demanding diagrams but the need for visual representation of the information regardless of complexity.

Individuals and groups

When communicating with an individual project team member the appropriate selection of style elements will be most effective. However, when

communicating to the whole project team it's more likely that you will need to accommodate all six of the listed learning style elements.

Responsible Listening is the Key to Feedback

The irony of speaking is that the most important element of your communication is achieved by looking and listening. As discussed above, these are the means of feedback. Consequently the project manager must give their correspondent an opportunity to speak. This is why it is important to speak in short segments and ask questions, it gives the listener the opportunity to engage. Then of course roles are reversed and they become the speaker and the project manager becomes the listener.

As a listener the Christ-centred servant leader project manager is now interested in ensuring that they have understood what is being said to them. After all this is vital if they and the speaker are to achieve their full potential. This of course involves giving feedback to the speaker. It is because of this that listening is the vital tool that allows the project manager to establish rapport with the person with whom he seeks to communicate.

Listening and showing that they have listened proves to the speaker that the project manager is interested in them and not simply the project. In so doing, the project manager demonstrates that the other person is important. That is essential because people appreciate and respond to being listened to and feeling valued. It has been said, that in the western world, that the next best thing to being loved is being listened too.

When it comes to the project manager's desire to communicate with someone, only when that level of rapport is achieved will the other person be happy to talk. Why? Because it is enjoyable and they know they will not be wasting their time. The attempt to communicate with them will move not just from monologue to dialogue but into conversation. Information will be voluntarily shared and comments will be shaped and purposed to meet each other's need. That is, to understand and answer each other's WIIFM question. It's worth remembering that both the project manager and the team members have a WIIFM question: The project manager invests time in the conversation because he desires some response. The other person does the same because they anticipate some kind of benefit, even if it's simply being able to follow instructions sufficiently well to do a good a job.

How do you show someone that you are listening to them?

Firstly, you need to provide your partner in the conversation with evidence that you have understood what they have said. This means that you need to reflect what they have said by restating it for clarification or asking questions that develop the theme and extend the information being shared with you.

Secondly, you must adapt what you say in response to them so that your message is applied to meet their needs – i.e. answer their WIIFM question. In a team situation you must make sure that the information you provide is clearly explained so that the team understands what actions are required for them to be successful.

Effective communication is vital for the project manager and the project team. In the Kingdom economy the goal is that both the project manager and the project team achieve their full potential. If communications fail this essential goal will not be accomplished. Consequently, the project manager needs to invest in developing responsible communications skills.

Meeting Challenges with Creativity

One of the certainties of any project is that it will present challenges to the project manager and their team. In the first place these will revolve around determining the solution to the requirements. Then the challenge is how to implement the solution which will be quickly followed by the identification and mitigation of risks, then once the project is running issues will arise. Each of these challenges will vary in complexity and difficulty but they all have in common the need for a solution. Often the success of the project will pivot on the solution to one or more of these challenges.

In order that their team can achieve their full potential, as they serve their higher purpose, the project manager needs to ensure that the best solution is found and that all the team chooses to own that solution.

Creative Problem Solving

When it comes to finding solutions to problems we tend to prefer those that worked before. At first sight that seems to be a hallmark of wisdom. Well sometimes it is but so very often it isn't.

The human brain and our minds contained therein are without doubt wonders of creation. A key method of their function is that of pattern matching. They receive all kinds of information and in order to make sense of it they associate that information into patterns. These patterns are time sensitive, depending upon the order that the inputs are received. So, if the information came in a different order the patterns created would be different.

In this capability God has created an incredibly powerful tool that can make sense of what goes on around it. A trivial example: on the basis of the patterns that we have learned we can identify two cars as being the same model and manufacturer despite having body shape variants and being different colours. Consider too the problem of identifying an individual's face in a crowd as they walk towards you. Computationally these are difficult problems but for our pattern matching brains, and the minds they contain, these are easy to do.

The difficulty arises when we need to find solutions to a fresh problem. Our minds do what they are good at and build and match patterns. The result is that most times we will find ourselves adopting a "best fit" pattern match as

we interpret the problem, seeking similarities to what has gone before. Some refer to this as the "lazy brain" because it is the natural line of least resistance.

Now a "best fit" pattern match is not an exact pattern match. This means that we will often find ourselves overlooking the unique aspects of a problem because seemingly it is not dissimilar to something we have seen before. We then tend to draw on the solution we previously identified. However, not being dissimilar and being the same are quite different scenarios and the old solution is most times not the best solution or even an appropriate solution for the current problem.

This pattern matching mechanism is a block to our ability to find the best solutions and results in the selection of solutions which are partial at best or are not solutions at all. The consequence of this is to generate another set of problems that arise from the gap between the chosen response and a proper solution. It also results in problems that recur, because they were not properly resolved in the first place, with the attendant frustrations and costs.

Another important type of block to finding solutions is the way in which we have been trained to interpret and think. We often think procedurally, and our lazy brains will follow our training. In some cases procedures are important but often procedural thinking will blight our ability to find solutions if the challenge does not easily fit the way we have been taught to think.

The best solutions for any problem:

- Need to be fitted to the exact circumstances of the challenge, i.e. avoid the pattern matching trap.
- Are not constrained by the way we have learned to think, i.e. avoid the procedural trap.

For the project manager the result of avoiding these traps will be effective, innovative solutions that enable the project team to fulfil their potential and invest in an excellent outcome for the project.

The question is, what can we do to overcome these blocks?

Jumping the Tracks to Creativity

These outlook blocks lead our thinking down a specific and well-trodden paths. Mixing the metaphor, these are much like tram lines; once on them

there is no getting off. What we need to do is find a way to jump tracks and come at the problem from an entirely different direction or, even better, a number of different directions all at the same time. Such approaches are broadly described as creative thinking because we need to find creative solutions. Such creativity leads to innovation and great resolutions, enabling the project team and its members to achieve their full potential.

Fortunately, there are those who have gone before us and identified a number of approaches we can take, for instance: Edward de Bono of "Thinking Hats" and "Lateral Thinking" (Penguin Books) fame and Michael Michalko in his book "Thinkertoys: A Handbook of Creative-Thinking Techniques" (Ten Speed Press) has collected many creative thinking techniques. (From the Christian spiritual perspective a few of the methods Michalko has collected require discernment and ought to be avoided but most of them are very helpful.)

So, how can the project manager stimulate jumping tracks to get a new perspective and find these fresh solutions?

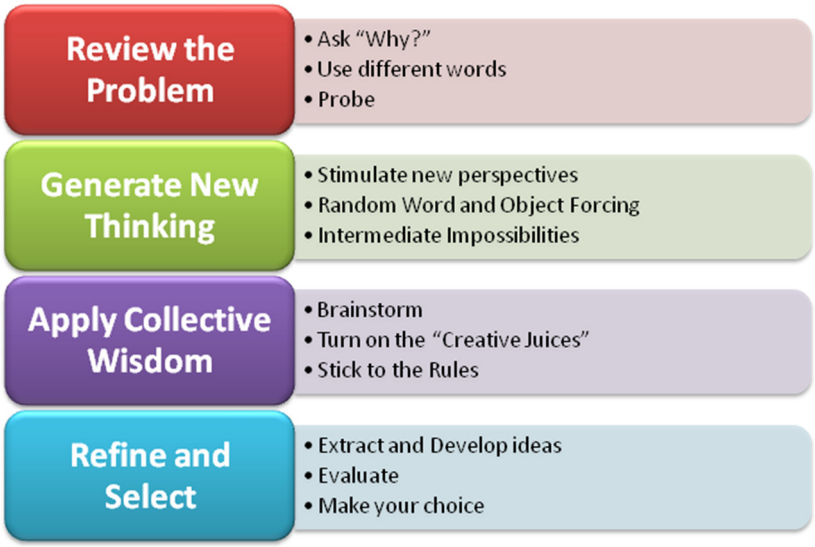

Figure 13 The Creative Flow

Have you got the right problem?

This is the crucial question. You would be surprised at how often the problem definition is incorrect. It may seem right but it isn't. That obviously puts any proposed solution at a distinct disadvantage.

We can have stated the problem incorrectly because pattern matching or

procedural thinking causes us to express it in terms of the closest problem we have seen, or a perceived solution based on what seemed to work last time presents itself. It is also possible for the problem statement to correctly describe a symptom, or some narrow perspective of the problem, instead of the full scope of the problem; in other words we do not correctly understand the problem.

There are some simple strategies for getting to the real problem. One is the question "Why?"

Ask "Why do I need to do this?" and keep on until you have expressed the root need.

The question "Why?" may be annoying in the hands of a ten year old but it is powerful when used well. As an intelligent enquiry you can use it to reveal more understanding. For example:

- A problem may have been stated as "I need to sell more product". The answer to the question "Why do I need to sell more product?" may be "I need to improve revenues".

Let's go again.

- The answer to the question "Why do I need to improve revenues?" may be, "I need to increase my profits"….

- "Why do I need to increase my profits?" "Because I need to grow my pension fund?" (assuming a small self-owned business)

Now you have got back to the root problem. The need to grow the pension fund but, en route, you have now stretched the problem, gaining new perspectives and extended the scope for potential solutions, so now you can ask:

- In what ways might I sell more product?

- In what ways might I improve revenues?

- In what ways might I improve profits?

- In what ways might I grow my pension fund?

This process has forced new perspectives on the issue. Each of these additional problem statements has a different set of solutions available. For instance:

- The pension fund problem might be solved with a different investment strategy which has no impact on the business. (In this case the example illustrates the problem of defining a problem in terms of one's perceived solution. This is something we all do but it unnecessarily limits our ability to find a good solution)

- Changing how the business operates to shed unnecessary costs might improve profitability.

- Increasing revenues might be achieved with new products or more salesmen.

So, asking "Why?" has brought about a change in perspectives and opened up more approaches.

There are other techniques for working on the problem statement.

Restating the problem using different words.

The simple and straight forward process of using synonyms and alternative phrases to restate the problem can open up new vistas.

Probe the question

Ask probing questions about each point of the problem statement so it becomes better defined. E.g. Given the statement "How can I reduce costs?" the following questions emerge:

- "Who do I mean by 'I'?"
  Is it really me or do I actually mean "we" – the team, an individual in the team or perhaps a department?

- "Reduce the costs of what?"
  Do I mean costs of the business, the project, the solution, a product etc?

- "Specifically what costs need to be reduced?"
  For example, if it's a project do I mean cost of people, the materials cost of the solution, the cost of a sub-contracted/outsourced work, overspends etc.?

These questions, and others like them, help us to refine and restate the problem. Especially if done by a small group with people who have different experiences and perspectives.

Generating new ideas

Having understood the problem, and clarified and refined its statement, the next step is to generate the solution ideas. There are many techniques that can be used to stimulate that thinking, breaking out into a different perspective.

Random word

One such idea to stimulate different perspectives proposed by Edward De Bono is the "Random Word".

A random word is selected from a book. It needs to be random to avoid the risk of it being infected by your own mind-set, the very thing you are trying to escape. The word can be selected by choosing a random book, a random page, a random line on the page and a random word on the line. This word is then applied to the problem either directly or via association.

For instance if the random word was "elevator" how can it be applied to the problem "In what ways might I improve profits?"

The obvious ways of improving profits are to increase the margin by increasing the price or reducing the costs.

How can the word "elevator" help me find other ideas?

- The noun elevator leads to the verb elevate. We could elevate the product by running a promotional campaign, selling more and effectively increasing margin by sharing fixed costs across more product.

- An elevator delivers stuff. We could create an added value delivery service making it easier for customers to get our product so making it easier to buy and increase margin.

- "Elevators" in the USA are "lifts" in the UK. Lifts deliver a group of people to a floor in a building:

    - We could package our products in groups so that people would buy a pack of 6 say, instead of single items. This would increase sales volume and share costs.

    - We could package products so that sets of complementary products could be sold together. Increasing sales volume etc.

This is a simple example of the impact that the "random word" can have on a finding new ideas to solve the problem.

Object forcing

A similar method is called "Object Forcing". Instead of a word one chooses an object. If it's a real object in the room then there are visual stimuli too. The object is used similarly to the random word and is forced into the solution. It's a good choice if ideas are drying up as it can stimulate the mind through fun and humour, especially if the chosen object is incongruous relative to the problem.

A trivial example by way of illustration:

Too many elastic bands are being used and a solution to control their use is required.

Let's choose a crab as the object. Now if I forced the crab into a solution somehow, what might the solution look like?

- The crab is used to guard the elastic bands making it difficult to get them for fear having fingers nipped.

- The elastic band container is glued to the back of the crab. As soon as anyone approaches the crab scurries off and hides, taking the elastic bands with it, making it difficult to find them.

There are other possibilities, have a go. Even try using a different object and see what happens.

These crazy ideas might be no more than crazy ideas used to stimulate thinking to get the creative juices flowing.

TIP:
Fun and laughter are important ways to stimulate creativity. Play is inherently creative and any creative thinking exercise needs to be fun to maximise its potential. Lack of fun in this process will equate to lack of stimulation and will not deliver new and creative solutions.

These crazy ideas might also be what are called "intermediate impossibilities", which are key steps on the path to a solution, but more on those later.

There are many other techniques that can be used dependent upon the nature of the problem.

Intermediate impossibilities

If there is a blockage in thinking and it seems impossible to arrive at a solution then an "intermediate impossibility" may be necessary. This is an idea that is so wacky or seemingly silly it might be written off altogether. But by considering the essence that underpins the idea and extracting this, a practical idea can often be derived.

Considering the crab examples we have just seen.

The essence of the first one is to protect the elastic bands making access difficult. This might have a practical realisation by placing them under lock and key.

The second is about moving or hiding the elastic bands and might be realised by putting them in a different cupboard or burying them underneath other stationary items.

Plainly these are trivial examples but serve to illustrate the method.

When seeking creative solutions it is important not to simply dismiss the wacky, intermediate impossibilities. They may seem fanciful but could have the germ of a great innovation of which you would otherwise never dream.

The seemingly ridiculous ideas also stimulate others. At the very least they act as that external impetus that can cause people to jump tracks to a different perception of the problem or solution space from which practical solutions emerge.

Refining and selection

Having devised a number of potential solutions they must be refined and evaluated. Refinement is considering exactly what the solution would be in detail. This may require some work and take a little time. If there are elements of the solution which seem “off the wall” now is the time to make them practical.

The evaluation is concerned with the practicality. Can the idea be realised? If it can’t then it should not be pursued but don’t give up too easily. If an otherwise attractive solution is blocked by some issue then treat that issue as a problem to be solved. Then combine the solutions.

Leveraging Collective Wisdom

So far the consideration of creative thinking has adopted the perspective of an individual or perhaps a small group in meeting mode. One of the hallmarks of the servant leader is not trying to solve all the problems themselves but drawing on the collective wisdom of their team. Generically, brainstorming is an excellent approach for this.

The idea of brainstorming is to gather a group of people together to collectively arrive at potential solutions. As a technique it has the benefit of fostering ownership from the team through their participation. It allows

members to feel valued as contributors and thus stimulates ownership and engagement which helps them achieve their full potential.

Most people are familiar with the concept but perhaps not the rules that are essential for success. There are also brainstorming variants that may be useful.

In the basic method the idea is that each person in the group takes turns in speaking out an idea that might provide a solution. The flow moves around the room, each speaking in turn. This corporate process itself stimulates changes of perspective as the ideas of one person trigger the ideas of another.

Step 1

Select your team. If you can it's good to include outsiders who are not deeply involved already and who will bring a range of other outlooks and experiences to the process. This is about changing perspective.

Step 2

Briefly review the rules of brainstorming, to make sure that everyone is on the same page. Review the problem to ensure that everyone is trying to solve the same one.

Keep this somewhat procedural element separate from the creative part of the session because it requires a different kind of thought process to the brainstorming part and can inhibit creativity.

Step 3

Spend a few minutes stimulating creativity, there are many techniques. You can brainstorm an unrelated and frivolous idea as this tunes people into both the process and the rules. Brainstorming will seldom deliver good ideas if the "creative juices" are not turned on.

Using drawing or finger painting to illustrate the nature of the problem will stimulate individual creativity, firing up the faculties which deal in things such as symbols and images, the big picture and imagination. Explaining one's finger painting to the team will also fire up the faculties which deal in things like logic, detail, facts, words and language. The benefit of this exercise is that more of your capabilities are brought to bear on the problem. It is also both challenging and, importantly, fun.

Step 4

Brainstorm the real problem. But keep to the following rules.

- Stay focussed on the topic
  It is easy to drift off trying to solve a variant of the problem.

- Encourage wild & wacky ideas
  These are the things that generate the intermediate impossibilities, stimulate fresh perspectives and result in the new, creative and innovative ideas.

- Defer judgement
  Premature judgement of ideas spoils brainstorming on three counts.

  - It crushes the one whose idea is criticised and they may then stop contributing.

  - It requires different, more logical analytical and procedural thought processes than are required in generating new ideas and so will inhibit the idea flow.

  - It also runs the danger of focusing on one possible solution only and it may not be the best one.

- Build on the ideas of others
  Unashamedly be stimulated by others and add to the ideas that have gone before. The goal is to create ideas not own them.

- Allow only one conversation at a time
  Do not let the meeting degrade into multiple concurrent meetings because the idea generation will grind to a halt.

The ideas are written up as they are called out.

Step 5

After 20 to 30 minutes the idea creation can stop and analysis can begin. The ideas can be reviewed some may be discarded, some may be merged and

develop into ideas of more substance. At this point the refining and selection process begins.

Facilitating the Brainstorming Session

The question arises of who should lead the brainstorming session, or any other problem solving meeting. The natural tendency will be for the project manager to lead. This has two significant drawbacks:

- Contribution
  It is not practical for the facilitator to join in the creative session. They are required to guide the meeting, keeping it on track and following the rules. This requires a different, more procedural and analytical style of thinking and occupies their concentration. Thus when the facilitator joins in they will not be able to run an effective session and they will not be creative either, because their thinking will not be in creative mode.

- Inhibition
  Often, having "the boss" facilitate the meeting, or even being present, will inhibit the creativity of the group. Members are likely to be self-conscious and concerned not to be seen as idiots. In situations where the project manager is considered to be the "boss" their presence at the meeting is likely to be counterproductive.

For these reasons, if possible, it is good to have someone to facilitate who is from outside the project. Experience in the creative problem solving and brainstorming processes would also be good. Whether the project manager attends will depend upon the nature of the project team's relationship to him.

Part 4:
Project Planning

The Project Canvas is an agenda that can be used to cue the consideration of the various factors involved in setting up a project. Project planning must be undertaken, addressing the elements identified with the Project Canvas. Once the project has been launched it must be managed. This section will review a set of project planning and project management disciplines and techniques required to make this possible.

The project itself may be huge but equally it may be small. In the latter case perhaps not all of the project planning and management methods we will discuss need to be rigorously applied. After all why would one run a project where more effort and money was spent in executing the full rigours of the project management method than doing the work? However, the basic principles of how a project works and is managed will need to be kept in mind.

Customer Requirements

A key reason for project failure is that the project scope is ill defined. It may seem to be an obvious statement but unless you know what you are trying to deliver you will never be able to deliver it. Unless it is well defined and a common and shared understanding agreed, the project customer will be expecting one thing while the project team is attempting to deliver something else; both will believe that they are right. It doesn't take much imagination to see how that will turn out.

The goal at the requirements stage is to prepare an accurate and complete statement of what is actually needed. It is not to design the solution but define what the solution must provide. This is then used to confirm that the proposed solution, and later the completed solutions does what is required. It is the basis the agreement between the project customer and the project implementer.

It's worth taking the effort to prepare good requirement that define what you want as this avoids all sorts of problems later on. All projects progress from one stage to another. A rule of thumb is that something over looked will cost ten times as much if it is left to the next stage to resolve. This makes sense if you think about identifying and resolving issues while you are still writing the requirements versus identifying that a door is in the wrong place when the building has been built.

Unclear Project Scope

From the perspective of the project triangle (scope, time and cost) it is plain that if the scope is not properly understood then neither the time nor the cost of the project can be properly determined. If the agreed project duration (time) and the price (cost) are met, it is very unlikely that the result expected by the customer (scope) will be delivered. Similarly, if the required result (scope) is delivered then it is highly likely that both the project duration (time) and price (cost) will overrun. Seldom in these circumstances do projects deliver the required scope whilst coming in under budget or ahead of schedule.

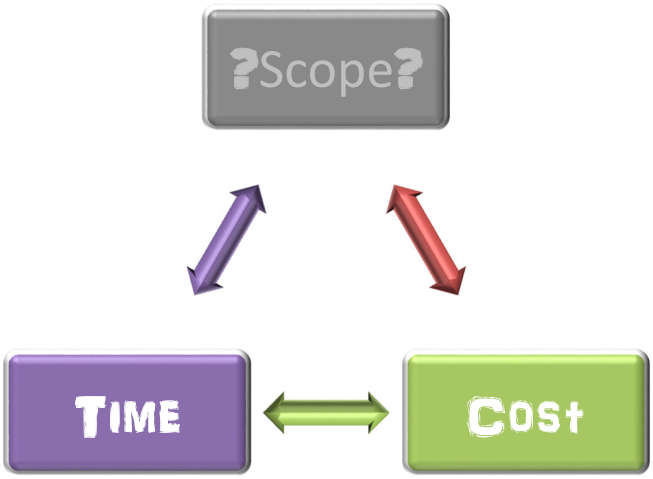

Figure 14 Unclear Project Scope

Stating the Requirements

It can be challenging to determine the Customer Requirements for a project.

Here are some tips.

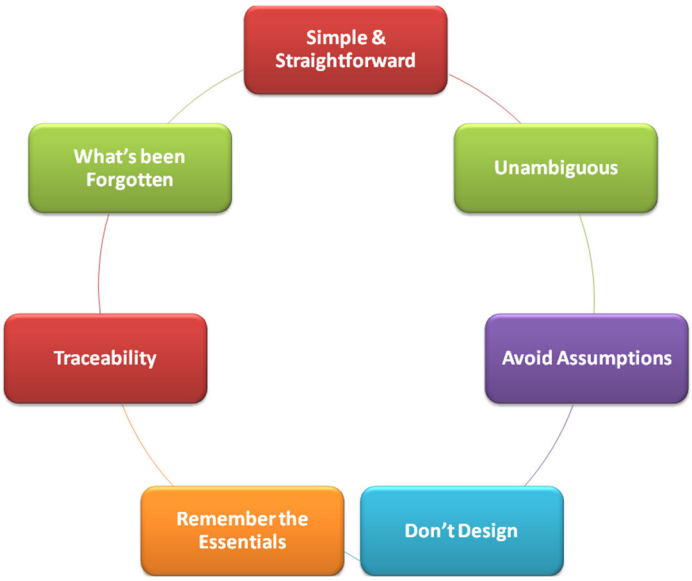

Figure 15 Devising the Customer Requirements

See also Appendix 2:
Seven Steps to Good Requirements which steps through the requirements process in more detail.

Simple and straightforward

Make the statement of requirements as simple and straight forward as possible keeping in mind the need for completeness.

Be unambiguous

It is essential to work out what is to be delivered and to state it in a clear, complete, exact and unambiguous manner. If it misses out on any of these, then the project scope will be inadequately defined and sooner or later the looming thunder clouds will erupt into the storm nobody wants.

Write down the requirements and review them with other knowledgeable people. If you are the customer, review them with your supplier and ensure that they understand what the requirements are and have exhausted all their questions. This process may well drive out some unstated but essential requirements. Their experience at this stage will be vital to making the project a success.

Avoid assumptions

When I was a teenager the father of one of my friends had a saying that has stuck with me. Whenever my friend had failed to do something asked of him and he said "I thought I had done it" his father would reply "What did Thought do? He only thought he did." The moral of which was don't simply think that you did something, make sure.

An assumption is a thing that is accepted as true or as certain to happen, without proof. In other words "I thought they would have understood …." Or, " I thought it was obvious that this was needed…"

Assumptions represent a huge and hidden danger, especially where it is assumed that they are part of a natural and shared understanding. Make a special effort to identify and check out your assumptions, avoid them if at all possible but if it is not possible, catalogue them, write them down as part of the requirements. Reviewing the requirements with someone who is knowledgeable or has done it before will be an enormous help in avoiding assumptions.

Avoid designing the solution

The Customer Requirements need to be a statement of what is required not the detail of how it should be done, unless that is important on some specific point. It is a natural thing to attempt to define what we want to achieve by describing the solution that we envisage and this tendency should be avoided. It often means that we don't really know what we want to achieve and that makes it difficult for the provider of the solution to identify the best and most cost effective way to meet the requirements.

Don't forget the essentials

Often there are elements of a requirement that are so obvious that they get overlooked. Be sure to catch these and include them.

Ensure traceability

The requirements drive the project and it is therefore important to ensure that the work done in the project is traceable back to the requirements. To this end each requirement statement should be uniquely numbered within a requirements document. This is normally done with a hierarchical section numbering. Downstream documents can then refer explicitly to each feature in the requirements.

Ask "What have we forgotten?"

Having written down the clear, complete, exact and unambiguous requirements, stating all your assumptions, ask the question "What have we missed?" This is actually best achieved by getting at least two or three other people to review the statement of requirements. Include knowledgeable and experienced people in this process, including if possible representatives of the team that will have to implement the solution. The review is best done by having the reviewers read the requirements and then meeting together to go through the requirements section by section – this is often called a peer review

Where you are capturing the requirements for the customer be sure to include them in the process.

When any changes or additions have been added to the requirements, have key stakeholders sign off the finished document, especially the customers and the implementers. This will then form the agreed project scope.

Customer Acceptance

Customer acceptance is the process used by the customer to confirm that the delivered solution meets their requirements and so the project is now finished.

It confirms that every element of the Customer Requirement is present, complete and correct in the delivered outcome, unless specifically agreed otherwise. In some projects it may be as simple as a check list to confirm the presence of each feature e.g. the correct type of door in the right place in a building. In others it may be a test to confirm both presence and correct operation of some feature. For example, a test that confirms that the "Contact us" form on a web site actually sends an email to the correct email address.

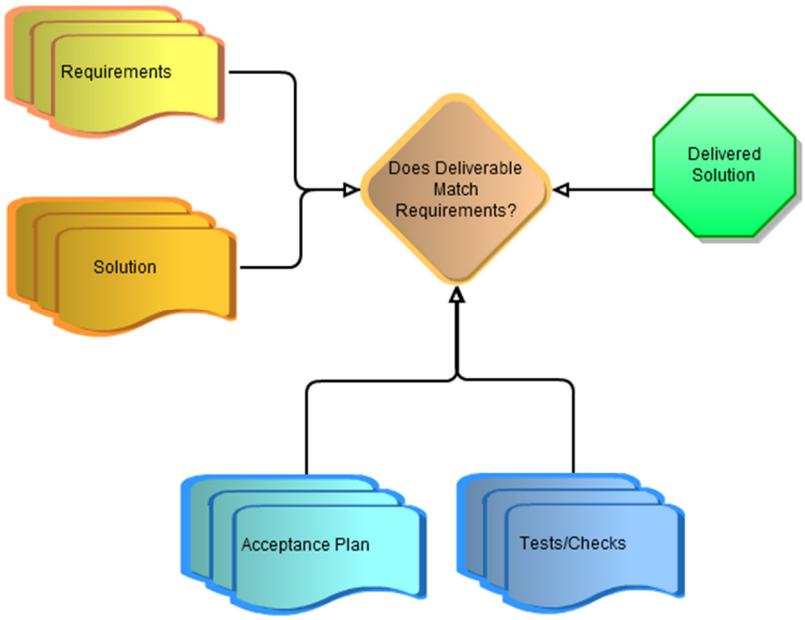

Figure 16 Customer Acceptance Process

Defining the Acceptance Checks

The Acceptance process uses a predetermined, written test script or check list that is derived from, and cross refers to, the Customer Requirements document using that document's section numbers. This is where traceability comes into play. Each item in the script checks that an item in the requirements has been provided and that it works as expected.

Similarly, each test should be uniquely numbered so that it can be clearly referenced when required.

Every item of the requirements must be covered in the acceptance test/check script. However, it may be agreed that some items are out of scope of the testing. This may happen for a number of reasons. For instance:

- The project in view is an additional phase of a multi-phase programme and the previous phases have already been accepted. Although special checks may be required to confirm that the previous work has not been damaged in any way.
- Elements of the project may be provided by another party who is responsible for their delivery.
- Elements of the project may be standardised and rated according to some specification. An example could be a fire door that has to withstand a fire for a defined period. Plainly such a door is certified as meeting its specification and you would not set fire to them to prove the point. Certification that the door meets the appropriate standard is sufficient.

Repeatability

Where tests are involved they must be exactly repeatable. This is because a test may find a problem in how something works. To fix the problem someone has to be able to reproduce it so that they can identify the cause and confirm that it has been fixed after some rework. Then the customer will need to re-run the test to sign off that they are happy with its resolution. If the exact conditions that gave rise to the problem are unknown then the problem cannot be replicated and none of this can happen.

To ensure repeatability, tests must be fully defined and individually have a unique reference.

Defining Acceptance Tests

Where tests are involved, for each the script must define:

- Any pre-conditions required to set up the test - for instance a brake test on a car would require that the car be moving at a specific speed with a specific load.

- The detailed process of the test which sets out and defines all the steps in sequence.
- The expected outcome of the test and the pass/fail criteria.

This allows the test to both confirm compliance with the customer requirements and be repeatable.

Preparing the Acceptance Tests

The acceptance test script can be prepared by either the project team or the customer, but must be visible to and agreed by both. It needs similar rigour in its preparation to the Customer Requirements and agreement by both the customer and the project team.

Even for very simple deliverables it is worth preparing such a script or check list albeit, the document need not be very complicated at all. If nothing else it acts as an aide memoire as to the list of things that should have been delivered.

The script will be accompanied by a plan which details when and where the acceptance will take place and who is authorised to confirm the existence and correction of problems and eventually sign off that the project deliverable has been accepted. Identifying the authorised people is important because, in the case of outsourced work, completion of acceptance usually triggers contractual payments.

The test script or check list needs to provide space for the customer to record the findings and outcomes. And it forms the formal record of the customer acceptance process.

The Emergence of New Requirements

Because of the nature of the process, it is not uncommon for new requirements to implicitly emerge as the acceptance plans and scripts are prepared, simply because minds are focused on what is really needed. These “new requirements” may only represent further definition and detail of specific requirements already stated or they may really be new requirements. For this reason it is good to develop this check list in parallel with or soon after the original requirements.

TIP:
New requirements that emerge through this process must be reflected in the agreed Customer Requirements otherwise they will not be implemented and the Customer Acceptance process is, by definition, going to fail.

If these requirement changes modify the scope of the project they may affect both the time required to implement the project and the cost of the project. Therefore, there may need to be a change in the project plans and any associated agreements and contracts may need to be renegotiated. Keeping control of change is an important issue, but more on that later.

When is a Problem a Problem?

Customer Acceptance will inevitably identify problems, especially if your project has a complex deliverable. However, not all problems share the same severity or importance and not all problems need to be resolved immediately. Just think of the problems you might find in your home: damaged paint, dripping taps, cooker or freezer not working. Some problems can be worked around and some cannot.

Problems, therefore need to be categorised to help decide how to respond. Normally four levels of severity are sufficient. Their specific definition is dependent upon the nature of the project, however generically the following definitions can be applied to almost any deliverable:

- **Level 1**

  An important element of the deliverable is missing or non-functional preventing the deliverable from being used at all.

- **Level 2**

  An element of the deliverable is missing or non-functional such that there are restrictions on how it can be used and there is no immediate way to work around the problem.

  If there were a satisfactory work around devised for a level 1 problem, with customer agreement it would be downgraded to Level 2.

- **Level 3**

The deliverable does not function as intended but the problem has only a minor impact on its use.

If there were a satisfactory work around devised for a level 2 problem, with customer agreement it would be downgraded to Level 3.

- **Level 4**

The deliverable suffers only from cosmetic issues or it has some problem with associated documentation. There is no impact on use of the project deliverable.

If there were a satisfactory work around devised for a level 3 problem, with customer agreement it would be downgraded to Level 4.

Problem Resolution

When a problem is found it is formally documented in what might generically be called a Problem Note. For technology projects it would probably be called an Acceptance "Trouble Ticket" in a building project it might be called a "Snagging List".

The Problem Note would be formally issued by the customer to the project manager, who would arrange for his project team to work out how to resolve the problem. If there are options as to the resolution, it would be necessary to agree with the customer which approach will be taken.

Normally, the problem resolution would be provided within a specific time frame defined for each level of severity. The period would depend upon the nature and operational importance of the deliverable but for a critical technology project it might be as follows:

- **Level 1** – A work around or resolution provided within 24 hours.
- **Level 2** - A work around or resolution provided within 3 days.
- **Level 3** - A work around or resolution provided within 7 days.
- **Level 4** - A resolution provided within an agreed time period.

When the customer agrees that the problem is resolved this is recorded in the acceptance test script or on the check list.

Completion of Acceptance

When the acceptance process is completed the customer and project manager should sign off on the project. This is normally done by issuing a certificate.

Frequently there may still be outstanding problems, in which case a provisional acceptance is agreed. This includes a plan to resolve the outstanding issues. The acceptance plan will define how many of each severity of problem are permitted at this stage. For instance it may be specified that the system can be accepted provided that there are no Level 1 problems, no Level 2 problems, no more than three Level 3 problems and no more than six Level 4 problems.

The number of problems of each type must be agreed at the outset allowing for the nature and purpose of the deliverable. This would be set out and agreed in the Acceptance Plan. Frequently the final payment for the project is contingent on clearing these final issues.

For technology projects, such as computer or software systems, the deliverable is formally passed over to support at this point. However, if early life support problems arise, the customer will likely insist that they will not pay the final fee until these problems are also resolved.

This may not be as written in the contract but even the friendliest customer may feel aggrieved and they would not be unreasonable in taking this course of action. Therefore, it is in the best interests of the project to resolve these final acceptance issues as rapidly as possible. It is in the best interests of all that excellent customer support services are provided to deal with new issues.

Problems will arise, that is to be expected. It is how they are dealt with that builds excellent customer relationships or destroys them.

Planning For Customer Acceptance

The project is not completed until the customer accepts the deliverable. Therefore Customer Acceptance must be planned into the project. However,

the customer acceptance process is controlled by the customer not the project manager. Once it starts they dictate the process and so the closing time and costs of the project are outside the project manager's control. Therefore the project manager needs to:

- Allow a realistic amount of time in the project plans for the acceptance process and have built in contingencies to allow for delays at this stage of the project.
- Ensure that the plans and acceptance checks are fully defined as early as possible in the project, preferably in parallel with or closely following the preparation of the requirements.
- Do all they can to ensure that the customer has planned for the correct level of resources to be available to conduct acceptance.

Project Risks

On February 12, 2002, 13 months before the commencement of the Iraq war, Donald Rumsfeld, the then US Secretary of State for Defense was taken to task for saying this:

> *"There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. These are things we don't know we don't know."*

His words were generally considered ludicrous at the time but to anyone familiar with risk management they perfectly describe the situation and the implicit challenge.

The initial process of planning a project deals with the things that you know. However, the project manager who limits his vision in that way is quite myopic and develops both a false sense of security and stores up problems for the future. Why? Because his project will inevitably be littered with unknowns and these unknowns represent a risk to the success of the project.

The wise project manager takes note of the things he knows he doesn't know and attempts to resolve them into things he does know and strategies to accommodate the things he cannot resolve, building both into his plans. After all this is the whole essence of the project planning process.

In the first instance the customer has only a concept and they do not know exactly what it means or how to bring it fruition, or what it will cost to do so. Work follows to determine the requirements, establish the solution and work out how long it will take and what it will cost. In other words work is done to convert the things they don't know into things they do know.

With some thought and imagination it is also possible to bring substance to many of the phantoms that are *"[the] unknown unknowns. [The] things we don't know we don't know",* converting them into "known unkowns" and perhaps into the set of "known knowns". These phantoms, by the very nature can never be completely listed.

The "known knowns", "known unknowns" and the "unknown unknowns" represent the minefield that your project must negotiate to arrive at a successful conclusion. The process of working on the unknowns with the aim of mitigating their effect,

should they arise, is the essence of project risk management. Building the mitigations into the project plan at the outset can harden the project against the impact of such occurrences.

Risks and Issues

Broadly speaking:

- Risks are considered to be those things that could negatively impact the project if the occur and which are identifiable at the outset. They are often related to assumptions that underpin the project.
- Issues are considered to be things that arise during the project and have a negative impact. They are things not identified at the outset.

Risks are identified by review during the planning stage. This process should include:

- A consideration of the assumptions underpinning the project;
- Experience from previous projects and;
- The more creative consideration of the things that could affect the project in order to pre-empt some of the events that would otherwise arise as issues.

Issues will be reported as they arise and also be identified through periodic reviews by the project team.

The list of risks could be long and so a means of prioritising them is required.

Assessing Risks and Potential Issues

As risks and issues are identified they need to be kept in a register which is also used to identify their priority and record and track mitigation plans.

For a risk to be worth addressing it must be both likely to occur and have a consequence (impact) worth avoiding. The simplest way of scoring a risk in this respect is to assign a value of between 1 and 3 to both “likelihood” and “impact” where 1 is low and three is high. The combination of Likelihood and Impact determine the preferred risk management strategy.

The “creative” review of risks identifies factors which, without the review, might have arisen as issues during the project. They can be assessed and mitigated as risks in advance.

Issues on the other hand are effectively risks which have not been identified in the risk review (the unknown unknowns) which arise during the course of the project. They will emerge through the reporting processes and are imminent and so need attention.

The level of attention required by an issue depends upon the magnitude of its impact and the cost/benefit achieved as a result of the effort needed to address it. In other words the benefit achieved must outweigh the cost of addressing an issue. For instance, issues with small impact but that are easy to deal with are worth addressing whereas issues with small impact but requiring a large effort to fix are not worth addressing and can, to all intents and purposes be ignored. However, issues with a big impact will have to be addressed in some cost effective way. The response fits somewhere in the spectrum between doing extra work to resolve the issue through to agreeing with the customer to live with the consequences.

Issues can be scored similarly to risk on the basis of Impact and Cost/Benefit of addressing them. The goal of the score is to decide if it is worth the effort to resolve the issue.

There are other risk scoring methods but I have chosen this one for simplicity.

Risk Mitigation Strategies

Mitigation can now be based on the Risk score. The Risk Mitigation Strategy chart sets out recommended approaches to risks of varying significance.

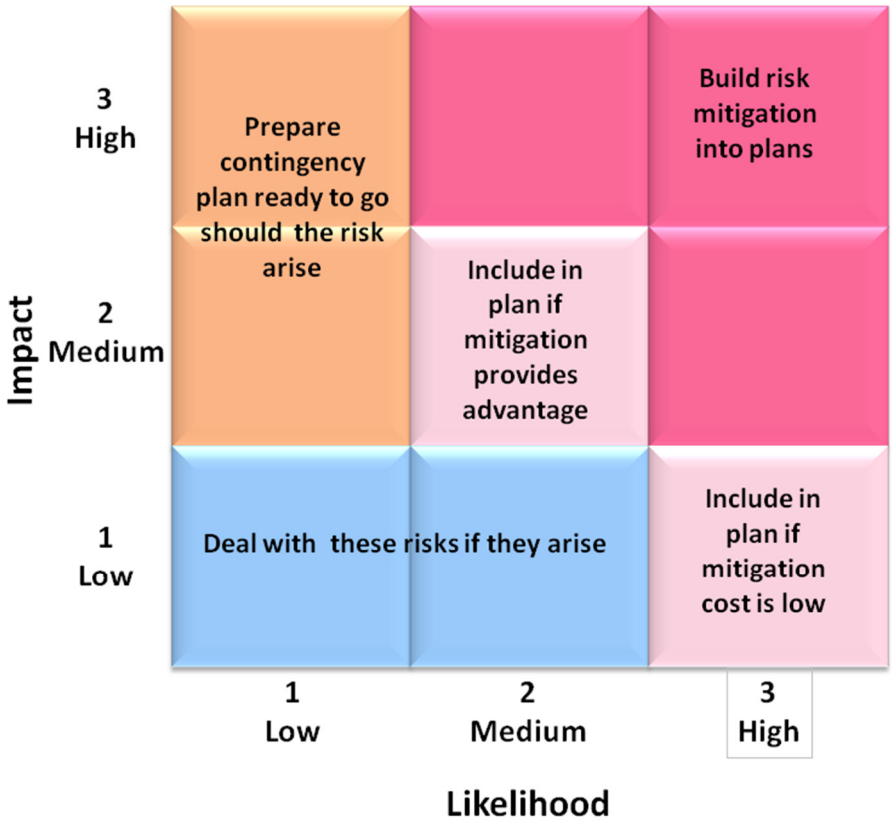

Figure 17 Risk Mitigation Strategies

- Low and medium probability risks with low impact (blue) can be ignored at this stage and addressed should they arise.

- High probability, low impact risks and medium probability and medium impact risks (pink) can be addressed provided there is an advantage to building their mitigation into the plan and the costs of doing so are not high.

- Low Probability risks with medium and high impacts (orange) are unlikely to occur but if they did they would have an impact of some significance. It is prudent to prepare contingency plans but not build them into the project plan. If they do occur then rapid action can be taken to contain and minimise their impact. The project manager might also include them in the calculation of any budget and time contingencies.

- High impact risks with medium and high probability (red) should have their mitigation built into the project plans as should medium impact, high probability risks.

The process of assessing risks is essentially subjective and so good judgement supported by hard facts is essential. For this reason the boundaries between the risk categories identified above should not be considered hard and fast. In any given situation it may be prudent to blur the boundaries and, for example, to plan in the mitigation for medium impact, medium likelihood risks and so on.

Mitigation Actions

Having assessed the potential risks and determined the strategies that apply the action plans must be determined for those risks considered as needing mitigation. In most cases a sequence of actions is required. These need to be assigned to appropriate individuals and built into the project plan. They can then be monitored.

In some cases the mitigation may not be actionable by the project team. In this case it will be necessary to escalate the issue to engage the person who can take the mitigation action.

Issue Resolution Strategies

Issues can be scored similarly to risk on the basis of Impact and Cost/Benefit of addressing them. The goal of the score is to decide if it is worth the effort to resolve the issue.

- Where the cost/benefit of resolution is high (green) the issue should be resolved.
- Where the impact of the issue is high and the cost/benefit is at least break even (green) the issue should also be resolved.
- Where the issue is of low impact (pink) unless the cost/benefit is high (green) it is probably not worth addressing. Ignore it, but be careful to be sure that you have properly assessed the impact and there is little or no risk of this developing into a bigger problem.

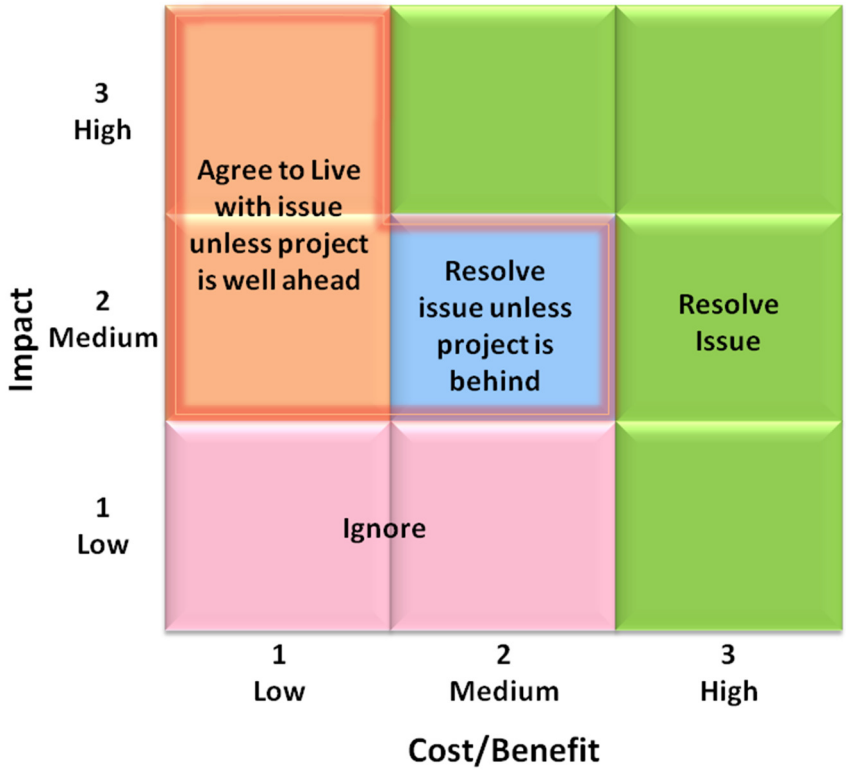

Figure 18 Issue Response Strategies

- Where the impact is medium or high but the cost/benefit of resolving the issue is low (orange) then the preference would be to leave it alone and agree to live with the issue unless the project is well ahead.

  Again be careful that you have considered the possibility of the issue developing into a bigger problem in the future, in which case the cost/benefit of addressing the problem is actually greater than you have assessed it to be. *Don't forget to agree the course of action with all the stakeholders.*

- Then there is that one in the middle. Medium impact and medium/benefit (blue). Provided this is a breakeven situation, or the project is ahead and can absorb the extra effort, then the issue should normally be resolved.

- There will be some situations where it is not clear whether it is better to establish the mitigation response straight away or wait and see what happens (the area within the boundary). In this case there may be other factors outside the project which bias the choice, for instance: reputation, commitment to excellence, aesthetics and so on. This

means that the issues in these areas need to be considered on a case by case basis.

The Risk and Issue Register

The Risk Register should log the identified risks. Normally each risk will be given a unique number (as simple as 1,2, 3 etc) and a description of the cause and the impact. They will be given their Likelihood and Impact scores and the mitigation described. An individual in the project team would be accountable for taking the action required to mitigate the risk.

The Risk Register is the key tool used to monitor risks and tracking mitigation actions.

The Issue Register is optional if you have other ways of documenting issues.

The Elements of the Risk Register	The Elements of the Issue Register
➢ Risk Reference Number	➢ Issue Reference Number
➢ Risk Name	➢ Issue Name
➢ Description of the thing that might occur	➢ Description of the issue that has arisen
➢ Description of the consequences and impact if the risk does occur	➢ Description of the consequences and impact of the issue
➢ Probability and Impact Scores	➢ Impact and Cost/Benefit Scores
➢ Description of the mitigation action(s)	➢ Description of the response
➢ Name of the person/people responsible for the mitigation	➢ Name of the person/people responsible for the response

Figure 19 Comparison of the Risk and Issue Register Content

Completeness and Accuracy

One powerful strategy for risk management is to ensure that all estimating, planning design and implementation work is done as completely and accurately as possible.

This can be aided by using predetermined check lists, adopting design standards and standard work processes and methods. Two key tools to achieve this are peer reviews and inspection of work. In this case, team members, or competent people who are from outside the project team, are called upon to review and inspect designs and work.

The review process must be included in the project plans.

If similar projects are run frequently then data should be collected and collated on project performance. This data can then inform future projects. For instance if most projects overrun because the time required for certain tasks is underestimated then it is possible to adjust estimates for your project to counter this risk.

Contingencies

Contingency planning is about identifying a course of action that can be taken should a foreseen, or even an unforeseen event occur (those unknown unknowns again). Enacting contingency plans will require time and effort from the project team and incur cost. This means that the project planning process must include time and money to allow the mitigation if required.

It is worthy of note that not all the risks for which contingency plans are established will happen. Therefore judgement is required to determine just how much room must be made in the project schedule and the budget to allow for some, but not all the contingencies to be enacted. Similarly the built in contingency should also allow for those unknown unknowns (unforeseen issues) to arise.

Monitor and Review

Risks and issues must be reviewed during the life of the project. How often, will depend upon the project but for sizable programmes monthly is normally a convenient period.

Project Solution

Requirements v Solutions

The solution is the description of how the requirements will be met. At this point it is worth reflecting again that the requirements for a solution and the description of the solution are not the same thing. In many ways requirements are somewhat abstract and, because most people find it easier to think about concrete things, we tend to describe requirements in terms of our perceived solution. This tendency should be resisted as it may funnel efforts in a particular direction which does not deliver the best solution.

The requirements are not a solution, they state what needs to be achieved whereas a solution description states what can be achieved and specifically how it will be achieved. A trivial example is the need to be able to travel at will, transporting a number of people and things some distance over the ground. Apart, from the fact that this is an inadequate statement of requirements, it is plain that it can be achieved by a number of solutions e.g. a car, a truck, a train, a motorbike, a battle tank. Refinement of the requirements will enable a more focussed solution to be identified.

Let's assume I needed to only transport two people and overnight luggage. I could describe my requirements in terms of a motorbike but if I did I would preclude other solutions such as a sports car, a city car or a small van. All of which may be better solutions.

Describing a Solution

The solution description needs to explain how each item listed in the requirements will be provided. It does not describe in detail the work that will be done by the project team but rather the results of their work.

For more complex situations the solution needs to cross-reference the requirements. This is often done in a tabular form called a Compliance Matrix (more on this later).

The solution description not only sets out what can be achieved and how, but also those requirements that cannot be met. This may be because they are infeasible or are too expensive or may take too long to achieve. In other words, it may be necessary for the customer to give up some of their

requirements. If this is the case, do not forget to update the customer requirements, acceptance plans and acceptance tests/checks.

The solution description becomes the instructions as to what the project team will deliver – the project scope. It will need more work to identify the work packages required, which in turn will lead to a project plan including the schedule (time) and budget (cost). There you will recognise the project triangle referred to earlier.

There needs to be an agreement, between the customer and the solution provider, that the solution described is acceptable and will form the basis of the project deliverable. As always agreements need to be signed and dated.

The preparation of the solution description is often the first stage of the design process. The project will include tasks to complete the design work. This is because the solution description tends to provide a high level description of the solution and does not develop all of the detail that may be necessary. In effect it becomes the requirements document for the rest of the design process. For this reason it may sometimes be called a solution requirements document.

Tips for Determining the Solution

There are some key tips when working out what a solution to the customer requirements will be:

- Work top down
  Start describing the solution with high level statements and work down through the detail. Each new level may need some consideration to identify the solution.

  Techniques such as mind mapping can be very helpful in this process. Alternatively use yellow sticky notes on a white board or wall, grouping ideas, concepts and approaches together. The advantage of both these techniques is that they inherently support an iterative approach and they allow elements to be moved around.

- Consult the expertise
  Competence is a vital ingredient in developing any solution. So if

you don’t know, find someone who does and engage their services and support.

- Review
  Review the solution with others who understand the needs, the solution or who are just good at asking questions. Make sure all the requirements are covered so the solution is complete. Make sure also that they make sense and that there are no gaps, especially when a requirement has more than one element in its solution. Also ensure that there are no overlaps, you don’t want to make something twice in different ways.

- Document carefully
  It is vital that the emerging solution be carefully documented, especially changes that may arise. Don’t forget to follow through the changes into other documents as appropriate.

Project Plan

Having arrived at the solution to meet the Customer Requirements the project now needs to be planned. The plan is not a one off thing; it is "living" and will change as the project progresses.

What Do We Need to Do?

The first question in the planning stage is "What work needs to be done to deliver the agreed solution?" Classically this requires what is called a Work Breakdown Structure (WBS), but do not be alarmed. All you need to do is identify the list of things that need to be achieved.

A Work Breakdown Structure is hierarchical, starting at the highest level of the required solution and it progressively "drills down" to the detail. It is used to describe the work that needs to be done at each level. Diagrammatically it looks like a pyramid starting at the top and working down.

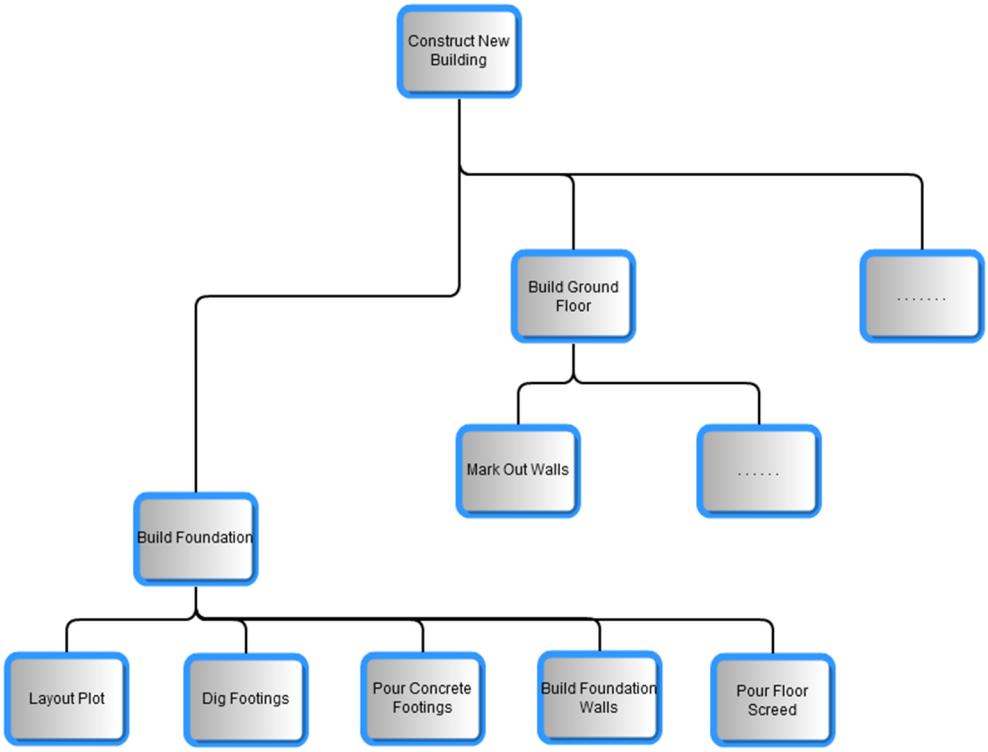

Figure 20 Example Work Breakdown Structure

Keep going down the layers until you have identified all the work to be done. The individual elements at the lowest level of detail are referred to as work packages. In sizeable projects the work package would typically require between 8 hours (1 working day) and 80 hours (10 working days) of work to accomplish - note this is hours of effort not elapsed time. In an environment where the workforce is volunteer based an effort should be made to define work packages at the smaller end of the scale. Volunteers tend not to be available full time and so large work packages will extend the elapsed time.

The work packages will translate into tasks that are assigned to individuals to accomplish, or in the case of a volunteer work force it may be appropriate to assign two or three volunteers to work together on the task. This is the level at which the project manager will monitor the project. If the work package is smaller he will be micro-managing the project, if it is bigger he will tend to have insufficient visibility of what is going on.

The Work Breakdown Structure should be documented and reviewed. Its preparation relies upon expertise and is best done by the project team. This stimulates ownership of the project and increases the team's level of commitment. When you think it is finished take another look to identify missing and overlapping elements.

The Work Breakdown Structure is time and duration free and so is not a schedule.

Building the Schedule

Having completed the Work Breakdown Structure the next step is to turn each work package into a task. A task is a work package for which:

- the effort required to complete it has been estimated.
- one or more people with the appropriate skills have been nominated to do the work.
- resource requirements have been identified.
- a nominal duration has been determined.

Each task will be assigned to someone to work on.

Tasks are linked in a network (called a Gantt Chart) and the project timeline can then be calculated.

Defining tasks and building the schedule can be done by hand for simpler projects or with project management software such as Microsoft Project.

Task dependencies

The ability to start and complete a task will be dependent upon:

- The availability of the assigned worker.
- The availability of specified materials and resources.
- The completion of identified preceding tasks.
- When people are available for work – The project calendar defines works days and so takes account of weekends and public holidays. When volunteers are involved the project manager must factor in their particular, individual availability.

Tasks and sub-tasks

A large work package will represent a task but it may be helpful to break it down into sub tasks. This is a matter of judgement for the project manager and the worker assigned to the task.

Defining tasks

Tasks can be defined manually using the following generic template.

<table>
<tr><th colspan="4">(Sub)Task Title</th></tr>
<tr><td>Reference Number</td><td colspan="3">Scope</td></tr>
<tr><td colspan="2">Dependencies/Inputs
1.
2.
3.</td><td colspan="2">Deliverables/Outputs
1. From WBS
2.
3.</td></tr>
<tr><td colspan="4">Assigned Person or Team responsible for the deliverables</td></tr>
<tr><td>Start Date</td><td>Effort/Cost To Complete</td><td colspan="2">Finish Date</td></tr>
<tr><td colspan="4">Required Resources</td></tr>
<tr><td colspan="2">Previous Task or Tasks</td><td colspan="2">Next Task or Tasks</td></tr>
</table>

Figure 21 Task Information Template

SMART tasks

Each task needs to be SMART. This set is slightly adapted in that “A” is more normally “Achievable” and “R” is usually “Relevant”. But for our purposes SMART is:

Specific

This means that it is well defined and the definition has a meaning that is clear to anyone with a basic knowledge of the project.

Measurable

The task must be quantifiable so it is clear that the goal is obtainable and it is possible to work out when it will be completed. This means it will be possible to know when it has been completed so work can stop.

Agreed Upon

The goal of the task must be agreed with all the stakeholders related to the task, especially the person who is responsible for completing the work.

Realistic

The task must have a realistic probability of being completed with the available resources, level of competence and time allotted.

Time Based

Enough time to achieve the goal must have been allocated. However, if too much time is allowed, it can have a negative impact on project performance

Building the Plan

A most useful tool for visualising the project is a Gantt Chart. Essentially this is a bar chart that shows the network of tasks fitted to elapsed time. It is used for planning and tracking project progress.

There are two key steps to building the project plan using a Gantt chart.

- First, build the tasks into a logically interconnected network showing the flow of work in the project.
- Second, apply dates to the network showing when tasks start and end and plotting this against a linear calendar so that task duration is shown by its length.

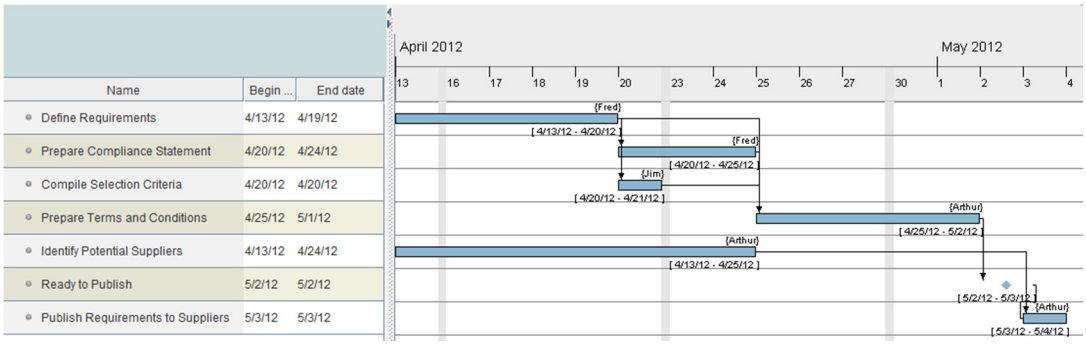

Figure 22 Example Gantt Chart

Completing the Gantt Chart

The amount of work (effort) required to complete a task has already been estimated. Based on the start date, the calendar of available work days and the availability of the worker, that effort can be transformed into an elapsed time. For instance: A task requiring 5 man days of work can be completed in 5 days (the elapsed time) if all those days are available for work – i.e. there are no public holidays and if the worker is available. If there is a two day public holiday during the time the task is running then it will require 7 elapsed working days; if you allow for weekends it will require 9 elapsed calendar days in all. Volunteer effort will of course increase the elapsed time dependent upon their availability.

When completed the Gantt chart shows the detail of the project:

- Each task is named descriptively.
- The workers assigned to each task are identified.
- The start and finish dates for each task are declared.
- The interactions (dependencies) between tasks are shown.
- The logical flow of the project is visible.
- The effort required for each task is available, often by looking at task properties.
- Based on the project start date the project end date can be calculated.

Identifying Milestones

Milestones are key dates in the life of the project. They are identified and used to report progress. Often where a contractor is used to implement the project, milestones will trigger payments.

It is important to identify milestones for your projects. There would never be too many but the exact number is dependent upon what is important for your project.

If it is a very big project it may be split into phases. The completion of each phase would be a high level milestone BUT each phase would have more detailed milestones.

Managing Overloaded Resources

Resource overloading arises when parallel tasks, which are scheduled for the same time period, need to use the same scarce resource at the same time. The only solutions to resource overloads are:

- Find more resources.
- Delay one of the affected tasks.

- Re-organise the project to avoid the clash.

Resource overloading most frequently occurs where specialist skills are required concurrently in two or more tasks. People can only be in one place at a time.

It is good practice, once a project schedule has been prepared, to review when key resources are required and take action to avoid overloading. Using the skilled worker example it is necessary to build a manpower chart showing how each worker is used by day/date. When the chart shows you that you need two Jims on any given day you know you need to take action.

Plotting the resource usage is something that project management software will do for you. The following is an example showing in red where the resources are overloaded.

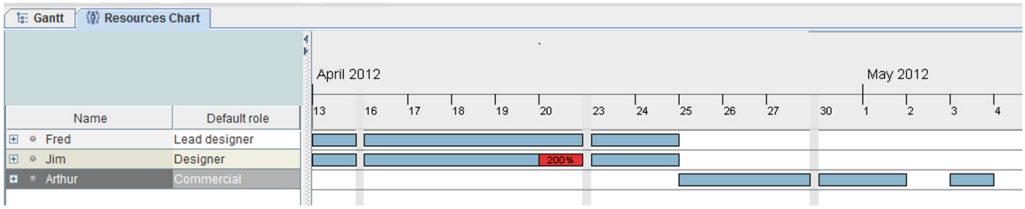

Figure 23 Resource Loading Chart

Optimising the Schedule

Once the Gantt Chart is available the process of optimizing resources and schedule can commence.

Manpower smoothing is the first action. Either additional resources are provided or tasks are re-sequenced to even out manpower usage. The ideal is that there are no peaks and troughs in the resources needed. Manpower overloading is an extreme case of a peak requirement. If you are using a software package then this will probably have a manpower smoothing function.

If the project takes too long then an examination of the critical path is required. The critical path is the series of sequential tasks that must all complete on time for the project to finish on time. If any single task is delayed then the whole project is delayed, day for day. Thus, the critical path dictates the minimum duration of the project. Most project management software

will highlight the critical path on the Gantt chart. There are two main actions to take to reduce the length of the critical path.

- Rearrange the logic of the tasks. Perhaps some of the tasks do not need to be on the critical path, in which case they can moved.
- Apply additional resources. By assigning some of the tasks to under loaded team members or resources perhaps work can be done in parallel.

Adding resources to long tasks can shorten them. However there is a law of diminishing returns on the application of additional team members to a task. Tasks are not infinitely divisible, so only a limited number of people can usefully work on any task. Even then the increase in effort is not linear and will fall off due to the additional effort required for communications and co-ordination.

TIP:
There is a temptation at this point to disbelieve the estimated effort for tasks and on this basis a project manager may be tempted to reduce the elapsed time allowed for tasks. This approach is fraught with danger and typically leads to projects over running. The greatest risk is not over-estimating the effort and time required for task. Rather it is quite the reverse. Self-justified over optimism needs to be avoided at all costs.

Without considerable prior experience of the tasks in hand, under estimation is a big risk. To counter this, information collected from previous projects concerning estimates and actual effort needed are required to help complete effort estimates for the current project. They will allow the team to more accurately assess the effort needed.

It is also worthy of note that estimates are affected by personality. More optimistic people are inclined to under estimate tasks while less optimistic are more likely to overestimate. Experience of the team, alongside the metrics collected from previous projects allows the project manager and the team members to improve the accuracy of their estimations.

Project Planning Software

Probably the best known project management software is *Microsoft® Project*. This is a good tool and is feature rich.

At the time of writing an alternative open source, free to use package is *GanttProject* . This has fewer features and because of this it is generally easier to use than *Microsoft® Project*, however there will be things it cannot do. *GanttProject* has been used above to illustrate Gantt Charts.

This software will allow you to capture all the key information that defines tasks and will build the Gantt Chart for you. You can define a project calendar allowing working days to be set out. *Microsoft® Project* is more capable when it comes to support for optimising the project and adjusting scheduling to avoid resource overloading.

ProjectLibre is a fully featured open source Microsoft projects replacement and is available free of charge.

At the time of writing *Zoho* also offers a very good online project management solution which is available free of charge for use on a single project with limited functionality. Paid for options add functionality. The full package has a wide range of features including collaboration tools to help the project team work together, time sheets and integration with iPhone and Android smart phones. It's well worth a look. *jxproject* offer a fully featured package for free but you get sponsored adverts. *Smartsheet* also offers an interesting paid for, on-line solution. There are also Excel Gantt Chart templates and plug-ins. These will be relatively simple with few features.

TIP:
Unless you have project management experience and know what you are doing, don't go straight to the project management software.

Unless you are already proficient with project planning software, first work out your task structure and initial schedule on the whiteboard or with yellow-sticky notes. Then you can use the software having a good view of what you are trying to achieve.

The Volunteer Workforce

At this point an aside to consider some of the issues of a volunteer workforce is appropriate. A volunteer workforce has some characteristics that present a challenge to the project manager.

Part-Time

By definition volunteers are seldom available full time and so the elapsed time of their tasks will likely be extended.

A one week task for a full time worker may take 6 or 7 working days over as many weeks for a volunteer. When the project schedule is worked out the volunteer's availability needs to be taken into account. Because it takes time to pick up an activity after a gap, dependent upon the task, a part-time volunteer may only be 80% to 90% effective. This too must be accounted for in the planning.

Larger tasks may benefit from assigning them to a group of volunteers who can work on them together, shortening the task duration. As discussed earlier making sure that work packages are of a smaller size would allow several people to work in parallel, reducing elapsed time.

Priorities

Volunteers, who are part-time have other commitments and so they have priorities driven by a number of outside factors. This can lead to unexpected availability issues.

A volunteer on the project may, for instance, also be a carer looking after children or elderly relatives or be involved in other volunteer work. Some of these commitments may give rise to urgent and unexpected calls upon their time; for instance an elderly relative who becomes ill must take priority.

In some cases, the volunteer may make unexpected adjustments to their availability for reasons that baffle the project manager. This may arise because their other involvements are more important to the volunteer than the project.

Flexibility can help here. The issues of availability do not necessarily arise out of unwillingness but competition for attention and time. Enabling the volunteer to work on a task when they can may help them juggle their commitments and be successful.

Also involving the volunteer at key moments in the life the project, especially when it is at concept and formation stage can develop their ownership of the project. Likewise involving them in finding solutions to problems can also enhance the feeling of ownership.

The sense of ownership will help the volunteer feel that the project is important to them and they have a stake in its success. Then it will naturally have a higher priority than other things in their portfolio of interests.

These factors can be considered in the Risk Review and mitigations and contingencies can be set in place.

Skills

A volunteer's skills may not be current and so the results of their work may not meet expectations.

The skills issue depends upon the nature of the task and the experience of the volunteer. This is a delicate area because hurt can be caused, especially if a volunteer feels that their effort, freely given is not appreciated.

A project manager needs always to have realistic expectations. It is no different when considering the contribution of a volunteer than a fulltime professional who is well practiced and current in their knowledge or skills.

Productivity

The volunteer may not be as productive as they once were leading to unexpectedly slow progress.

This issue is really skills issue in another form and realistic expectations are required on the part of the project manager. Even with full time, experienced staff the productivity issue will arise and must be allowed for when estimating how long particular activities will take.

Risk review and mitigation actions can be also used to establish contingency plans if necessary. Also thinking carefully about how to best to deploy the volunteers will be essential.

Aspirations

The volunteer's aspirations may not be aligned with the project goals leading to dissatisfaction, demotivation and their leaving the team.

Volunteers don't volunteer because they get paid but because the activity meets some personal objective that they have. Achieving this aspiration is their reward. If the project doesn't fulfil their aspirations the volunteer will feel dissatisfied. Dissatisfaction leads to poor motivation and negatively impacts the quality of work and productivity. Ultimately it may lead to the volunteer leaving the project team.

Similarly, poor leadership skills and lack of recognition can lead the volunteer to feel undervalued or not valued at all. Such circumstances will lead to the recognition that they "don't have to put up with this".

Helping the volunteer own the project and its outcome will help them to receive the rewards of achievement and fulfilment that they desire. "Encouraging their hearts" through the recognition of their contribution and drawing on their expertise or experience will also boost their sense of ownership and value.

The issue of aspirations and associated expectations is not just limited to volunteer workforce situations. It can be found in many Christian organisations where there are aspirational motives on the part of staff for joining up. If these aspirations and expectations are not aligned with the reality of the organisation and associated work, then difficulties can arise. An open discussion of these issues at the outset of any relationship will be invaluable. In organisational scenarios personal inventories and psychometric instruments can be used to surface such issues.

Leading Volunteers

Many of the skills required to lead volunteers are basic leadership skills and are discussed in Part 3. As such they are key to full time team members too. In

the end, even a paid worker is volunteer in that that they have to choose to follow their leader and be led by them.

For the project manager, realistic expectations are key. i.e. recognising that a volunteer workforce introduces a set of factors that are different to those of a full time workforce. However, wisely considering these factors and using good practice when it comes to planning the project will allow the development of a successful project plan.

Key Resources

Key resources are simply that, the resources that are key to the project execution. They will become evident as you define each task in the project. They may include individuals with specific skills, specific equipment without which certain tasks cannot be performed. They may include specific, critical supplies required by the project.

Resources which are the subject of some risk mitigation are by definition Key Resources.

Key resources will appear in the project plan as inputs but are worthy of greater visibility. If using project planning software that does not specifically have a feature that supports resources it is possible to treat a resource as a pseudo-person assigned to the appropriate tasks.

Key Partners

Key Partners are external parties who play a significant role and gain some benefit from the execution of the project plan. Note, however, that a partnership is a bilateral relationship; both sides recognise the relationship and have deliberately agreed to it. They may be:

- The implementers of outsourced elements of the project
- Business partners
- Funding agencies

Single source suppliers of critical components may or may not be Key Partners. They may be critical suppliers but they may see you as any other customer and so are not partners. It is worth noting them down however, because of their critical importance, but annotate them so that you are reminded of their true status.

Generally speaking, if they are strategically important to the project then they can be noted in the Key Partner area of the Project Canvas.

Project Costs

The three main elements in the project triangle are scope, time and cost. So far we have considered the project scope and time factors. The main cost elements of a project are:

- Internal time related resources e.g. people, computer time etc.
- External time related resources e.g. specialists, equipment hire etc.
- Materials
- Expenses e.g. travel costs
- Support services e.g. networking, telecommunications etc.
- Outsourcing costs

Broadly speaking, these can be categorised into people costs and other costs. All need to be assessed, calculated and brought together to determine the overall costs of the project. Unless this is done, a major task of the project manager cannot be achieved. That is to complete the project within budget.

Determining People Related Costs

Working out the people related costs can be a conundrum in many organisations because it requires a detailed knowledge of the costs of the organisation. Sadly this is often lacking.

As a baseline, annual salary costs for the team plus an allowance for operational costs such as heat, light and phone can be estimated and used. In a small organisation or a church, it may be appropriate to calculate costs for each individual working on the project, based on their actual pay rather than the average pay for the team. Volunteers of course have no pay, their contribution is measured in effort but they do attract the other costs.

If the project is offered as service to a third party it may also be appropriate to add a mark-up to the cost, or determine a profitable price by some other means, so that it becomes a net generator of income. The level of mark-up and price margin is a matter of judgement.

When converting annual costs into daily and hourly costs for full time paid staff, divide the annual values by the number of available working man-days.

A good estimate is that there are 220 man-days available in a year. (52 x 5 day weeks, less an allowance of 40 days for holidays, training and sickness.) This calculation then provides a day rate that can be used to estimate the financial cost of the project team.

Material and other Costs

These need to be carefully collected and calculated during the planning phase. The project manager will also need to track these as the project progresses.

Penalties

Where the project is delivered as a service there may be penalties for late or incomplete delivery. These would count as costs against the project, although they may not be incurred if all goes to plan.

Cost Reduction

Frequently projects come under scrutiny because cost savings are needed. Often the first and perhaps only reaction is to attempt to control expenses. This is, most times, a big mistake. It's picked on because it's easy, but usually the total expenses bill is small relative to other project costs. This means that it offers few savings even if draconian measures are employed. The other reason that it is a mistake is that it affects the people in the project and makes life difficult for them. They often see trivial "penny pinching" and control processes that cost far more than the money saved. It is an outlook that demotivates the project team and has adverse effects on the project as a consequence. It suggests an attitude that people are just cogs in the machine and fails to recognise that projects are about people.

Figure 24 Project Cost Bar

Consider the Project Cost Bar. If calculated for a project it illustrates where the best targets for cost reduction are: the items of highest value.

Project Benefit

A Project Benefit may be tangible, intangible, financial or non-financial.

If they are financial they represent the income that arises from the project. It counterbalances the project costs in the business case made when arguing for the project in the first place.

Project income will arise in three main ways.

- The project is provided as a service to a client for a price.
- The project is internal and so is not chargeable but it delivers some solution that is used to directly generate revenues e.g. an on-line shop.
- Grants may have been obtained to cover some or all of the project costs.

Additionally there may be other benefits resulting from the project, which although not revenues, may be significant in the business case for the project. These may be things such as:

- New capabilities which indirectly allow revenues to be made. For instance the construction of a factory would indirectly generate revenues if the factory's products were sold.
- New capabilities which generate a financially intangible benefit, for instance a hostel funded by donation.
- Cost savings made as a result of the use of the solution delivered by the project.
- New facilities that are required, e.g. a bigger church building allowing everyone to gather in a single Sunday service.

Even the non-financial things need to be measurable in some way in order to justify the project. They should be measured once the project is complete and compared against the original business case. This process will inform future business case developments and project execution.

Part 5:
Project Management

Once the project is planned it must be managed. Without this process of monitoring and control the planning has little value and is unlikely to deliver on any of the elements of the project triangle. This section considers some of the tools and techniques that are available to help the project manager bring the project to a successful conclusion within budget and on time.

The Importance of Documentation

By now it should be obvious that documentation is crucial to planning, setting up and executing a project. It is the key means of capturing and conveying information, requirements and plans. It provides organisational memory so that things are not forgotten during the project and it supports learning so that future projects can be made more effective.

The thought of documentation is guaranteed to generate groans from all concerned and may even seem demotivating. Alas it is essential but need not be overbearing.

It will be evident that any single project will include a number of different types of document. If you are running more than one project there will be more than one set of project documents.

To add to this confusion, in each project many things will change and those changes will result in documents having multiple versions.

Document Disciplines

In order that a project team and its management are always "singing off the same hymn sheet" it is necessary to keep the documents under control and ensure that each individual document can be uniquely identified. The process of doing this is called Document Control and there are some basic disciplines that make this possible. Judgement is required in establishing a documentation control scheme. If overdone it can be obstructive, if underdone it can lead to chaos.

Document set

Each project requires the same set of documents. Many of these will be obvious and a sensible set can be found in *Appendix 1: Project Information*. Documents we have considered so far include a Requirements Statement, a Solution Statement, a Customer Acceptance Plan, a Customer Acceptance Test, a Gantt Chart, a Risk Register.

Unique identity

Each document must have a unique identity. As a minimum this comprises a unique document number and current issue number. Often the document

name/title is included and the date of issue. The document number allows each unique document to be unambiguously indexed so it can be referenced and located. Therefore, from an electronic storage point of view, it is preferable for the document file name to lead with the document number followed by the issue number. When held in a single folder the documents will appear in number and issue order. Some document numbering conventions include a document type designation which is often the initials of the document type e.g. CR =Customer Requirements, GC = Gantt Chart and so on.

Document Number	Document Type	Issue Number	Issue Date	Document Name
1234	CR	1	120705	New Building Requirements

Figure 25 Document Register Entry

This number can be used as the document file name, in which case it might be rendered: 1234-CR-1-120705- New Building Requirements.

To ensure that the document numbers are unique they are controlled by a register.

Issue number

The issue number, and the date of issue, helps to identify which version of a specific document is the current and up to date version. This enables everyone to keep up with and take account of the latest changes.

Change history

It is very helpful for a document to include a Change History section. In this the changes made from the previous version can be pointed to and summarised. Frequently significant changes involve only a few words or numbers and they can be hard to spot without the help of a Change History. It also facilitates traceability when problems are being investigated.

Author

The person responsible for the document needs to be known.

Authorisation

When a document is finished it needs to be authorised for release (to be published and distributed). The authoriser signs off the document when they are happy it is ready to go. This ensures that the content of the document is actually required and not simply the whim of the author and that its content is correct and has been properly completed.

Distribution list

A standard distribution list for each document ensures that everyone who needs a copy of the document gets one. Failure on this point means that key people in the project may be unaware of significant changes.

Simple Documentation Control

A Documentation Control process is required to ensure the quality of the document content and maintain control of changes. Uncontrolled change leads to project failure.

Document register and unique document numbers

A register of documents helps to keep track of documents and ensure that each has a unique number. Essentially the next number in the list is assigned to the document and the author's name and document title is recorded.

If there is only ever going to be one project, then you could skip the document number but it is best practice to use one.

If you have lots of projects then there may be a need for a project identifier in the number.

Issue numbering

By convention the document issue is designated by a number with drafts being indicated by letters of the alphabet. A document is at issue 2, say, and a change is needed. The next version would be issue 3. The first draft would be 3a, the next 3b, the third 3c and so on. When the document is ready to

release the letter would be dropped and the document would be published as issue 3.

Document review

Before a document is issued it should be reviewed by the team and, where appropriate, experts. Changes emerging from the review should be completed. The Authoriser acts on behalf of the reviewers, ensuring that the changes have been completed before allowing the document to be issued. Where there are lots of changes or the changes are significant then multiple reviews may be required.

Master document

Keeping a master version of the current issue of documents provides a reference point. It allows anyone to compare the issue in their possession and determine that it is the current version. The master document should be accessible to all and therefore keeping it in an on-line repository in pdf format[1] would be good practice. *Box.net* provides a free service that is useful for this purpose as well as providing the means for collaborative work on documents.

[1] PDF is the "Portable Document Format" used in computers. It allows documents to be easily read with an appropriate "reader", but, to all intents and purposes, it is not easily edited and so helps assure that the document content cannot be inadvertently changed.

Outsourcing the Solution

Frequently, all or part of the solution may be outsourced. If this is the case then there is a process that needs to be carefully followed, especially if you are seeking competitive quotes.

Selection Strategy

First the rationale for selection needs to be determined and this will revolve around the elements of the project triangle: scope, time and cost plus another element: quality, which is really an aspect of scope.

Be careful of looking for the cheapest price because typically you do get what you pay for. Reducing the cost will normally impact the delivered scope simply because by implication you are asking for less work to be done, and if all the features are present then the quality may be suspect because corners may have been cut or cheaper materials may have been used.

Solution Compliance

In many situations the offered solution will not meet every requirement that you set out. If you are going to competitive tender you are left with the challenge of comparing solution proposals which do not deliver identical solutions.

The solution to this is the Compliance Matrix. This lists every individual requirement and shows the priority set by the customer for each feature e.g. mandatory, optional, essential, nice to have, desirable and so on. The detail of the requirement will have been set out in the Requirement Statement.

Project Name				
Id No.	**Requirement Title**	**Priority**	**Supplier's Compliance**	**Supplier's Description**
1	Requirement 1	Mandatory	Yes	Explanation of how
2	Requirement 2	High Priority	Yes	the requirements
3	Requirement 3	Desirable	No	will be met
3.1	Requirement 4	Optional	Yes	by the supplier

Figure 26 Example Compliance Matrix

The prospective supplier completes the matrix indicating which requirements their solution meets and making a brief statement as to how it will be achieved.

When the Compliance Matrices are returned they provide a straightforward means for comparison. In addition to the Compliance Matrix the supplier will provide his project plan, commercial terms and price.

Making Your Choice – The Decision factors

Typically the selection is made on the basis of who is promising to deliver the most for the least amount of money, although the dangers of this approach have already been noted.

Attention needs to be given to:

- Completeness of the solution
- Quality of the solution
- Reliability of the supplier – Do they deliver on their commitments?
- Capability of the supplier – are they capable of delivering the things that they offer?
- Longevity of the supplier – will they stay in business long enough for the project and any post project maintenance?
- Contract terms and conditions.
- Constraints that may be imposed by the supplier in how they deliver the solution.
- Dependencies on you and third parties
- Risks associated with the supplier
- Responsibilities and obligations – What and how much of the work do they require your team to do?

Selection factors may include the following questions:

- How much of the requirement will the solution provide?
- How compliant is the solution to the part of the requirements covered?
- Is the solution realistic?
- Do you believe the supplier can do it? This is about the sense one develops about a supplier. Effectively it is a facet of trust.
- How closely does the supplier's proposal match the required timescales?
- Do you believe the offered solution can be delivered in the offered time?
- What do other clients of the supplier say?
- Is the cost within your budget?
- Do you believe the offered solution can be delivered in the offered time for the quoted price?

TIP:
Even if you outsource the solution there are things that you will have to do and your selected supplier should make them plain. You will still need to set up your project and have a project manager to liaise with the supplier and co-ordinate your own work. This will still need a plan.

Making Your Choice - Involve the Stakeholders

The decision to outsource the solution is not a solitary task and is a collective process that best involves all the stakeholders. The process itself will require an assessment of the decision factors identified above along with other project specific issues.

First the decision criteria factors must be identified and then the stakeholders must agree which are important and to what degree.

Importance is often indicated by a weighting score. In parallel with this score items which are mandatory need also to be identified. Failure to comply with

mandatory requirements will disqualify a supplier. Like the choice of criteria the weightings will be determined collectively by the stakeholders.

The supplier's responses to the requirements will be assessed and scored according to how compliant they are. This compliance score is adjusted by the weightings by multiplying the two numbers to arrive at a supplier evaluation score. Where factors are more subjective – e.g. level of confidence in the supplier's ability to deliver – they can still be scored in a similar way.

The supplier evaluation score provides a normalised result that allows comparison between suppliers. However, simply totting up the individual scores and seeing which supplier gets the highest total will not often be sufficient for making a decision. It will help identify the "no-hopers" but care and prayer is required, rather than simply mechanics, when making the choice. The successful supplier will be a partner and the ability to be comfortable in working with them is important.

Supplier: Acme Projects				
Id No.	**Title**	**Importance Weighting** *(A)*	**Supplier's Compliance Score** *(B)*	**Supplier Evaluation Score** *(AxB)*
1	Requirement 1	5	9	45
2	Requirement 2	3	6	18
3	Requirement 3	7	2	14
3.1	Requirement 4	5	7	35

Figure 27 Example Compliance Assessment

Project Monitoring

The project manager's job is first to plan and set up the project and then to keep it under control such that it delivers the agreed project scope according to the agreed budget and timescale. The fundamental means for this is to proactively monitor and review the project progress on a regular basis, from beginning to end, and to establish appropriate interventions should things begin to go wrong. This control process includes key members of the project team and, when appropriate, the stakeholders external to the project team.

Project Tracking

Given the nature of the project triangle the project manager monitors the three elements of project: scope, time and cost.

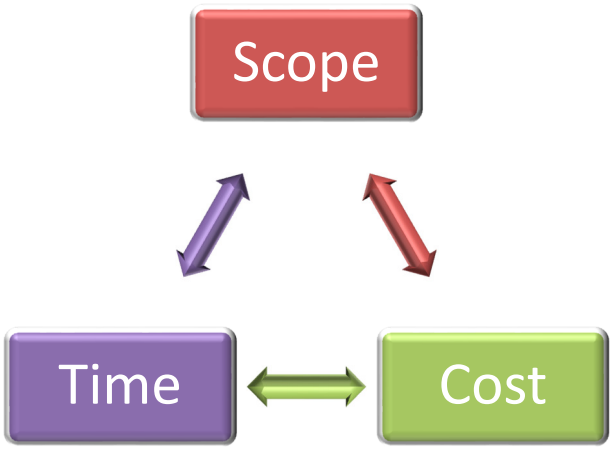

Figure 28 Monitoring with the Project Triangle

Most times, time and cost are very closely related because the major costs in most projects are due to the people working on it. Monitoring time and costs requires a regular flow of information reported from the project team members.

Processes should be set in place to assure the scope of the project. These revolve around the careful review of work specifications and plans to ensure that nothing is missed in the development of the solution. Additionally, because things change, the discipline of change control is vital to maintaining the scope and progress of the project. These processes begin even in the planning stages of the project and carry on until its successful completion.

The frequency of the monitoring and review process will depend upon the nature and size of the project. The normal frequency would typically be weekly but projects that are inherently slow, say with only one or two people working on them over a reasonable period may benefit from a longer monitoring period. It really depends upon the rate at which work is done and cost is incurred. Even if monthly seems a sensible period for full progress reporting it is prudent for the project manager to monitor things informally more frequently.

How long will it take?

The big question is will the project finish on time? For this the project manager needs to compare progress with the plan. Is work being done at the required rate to complete the project to schedule?

This requires that each project team member reports the amount of effort they have spent on the project in hours and how much of the task remains to be completed. The foundation for this is a standardised time recording system for the project that records and reports the time each team member has spent on specific jobs. At its simplest this is a paper report recording the number of hours spent and the dates the work was carried out, along with an estimate of the hours still needed to complete the task.

Time recording

The essential requirements of a time recording system are:

- The ability to designate job numbers for each task in a project so that time expended can be recorded against each job. Once a project has been planned the job numbers can be assigned.

- To enable team members to record (book) the time they spend on specific jobs.

- To allow time to be aggregated against each job number.

- Ideally also to calculate the cost of the time expended on each job. (If necessary this must allow for individual team members to be charged at different cost rates. This depends upon how your organisation's cost structure works)

- Deliver summary and detail reports showing how much time and money has been expended on the jobs in the project.

Such a system can be an online/automated system. Alternatively if the project is not complex and there are not many team members this can be achieved using spreadsheets. Collaboration tools such as *Google Apps* and *ZOHO* allow simple spreadsheet based systems to be created on-line. This will allow one on-line workbook to be established for each project and allow each team member to book their time. There are now also free open source time management systems such as TEMS and TimeTrex

The project manager would then translate the data into his Gantt Chart to show progress.

Estimate to completion

At first sight it seems that the monitoring process set out above is sufficient to enable effective and adequate project tracking. However, that process alone is likely to lead to surprises close to the end of the project, when it becomes plain that it will not finish on time and overrun on cost.

Considering only the effort expended does not reveal the issues which affect the actual effort needed to complete the task. If the task overruns it is highly likely to negatively impact later tasks. On occasion such a slip may move a later task beyond a critical point, which could have massive ramifications for the whole project.

Tasks overrun due to one or more factors that are at work in the real world. For instance, a task may have been estimated as requiring 4 man weeks of effort but in reality it turns out to need 6 man weeks. The possible root causes of this include:

- The original estimates were wrong perhaps because the scope of the task only really becomes apparent once work has started.

- Some external factor (an issue) arises and causes the task to need more time.

- A mistake is made and all or some of the work has to redone.

TIP:
To make the overrun visible to the project manager, when the team member reports the effort expended so far they must also report their estimate of the effort needed to complete the task, based on what they know now.

This data can be fed into the Gantt Chart and the project manager can see the impact on the whole project and, if necessary, take action to recover the situation, pre-empting project overruns.

What steps can be taken to recover the time:

- Overtime working
- Add more people to the task. This is often problematic as the additional people will need the help of the first to come up to speed on the job in hand. This may make the situation worse.
- Reduce the scope of the affected task by removing some functionality. This would add work elsewhere as the change management process will be needed.
- Rearrange the logic of the project around the tasks that are dependent upon the delayed task.
- Phase the deliverables. It may be that the next task can begin with an incomplete delivery.
- Cut corners by being less stringent in the process – this has obvious dangers.

If none of these works then it may be possible to recover the time from somewhere later in the project or absorb it with any contingency time built into the project.

Budget control

Monitoring and managing the budget is as important as managing the time and effort, perhaps more so as it is the money available that limits the amount

of effort that can be expended. It is helpful to split out the following financial elements when managing the budget:

- The people/effort related costs
- Resource costs e.g. machine time, hire cost etc.
- Materials
- Travel and subsistence expenses if the project involves travel

The people/effort related costs are usually the largest cost element by a long way and the most difficult to control. Allowing for the contingencies addressed as part of the risk and issue management process, once the money is gone the project has to stop, finished or not. Thus it is vital to keep a tight control over project finances.

From the perspective of the people related work, the project budget is determined by multiplying the man days of effort required by the hourly or daily rate for the people involved. How this rate can be determined has already been discussed.

This simple arithmetic gives the total budget for the labour required to complete the project. The total project spend will include this value plus the cost of materials and expenses.

The total labour cost for the budget represents a financial ceiling, the limit beyond which the project should not go, but otherwise it is none too helpful to the project manager trying to monitor the project.

More helpful is the cumulative budget calculated on a week by week basis. This can be used to monitor actual spend rates derived from the time booking system. When the cumulative budget and the cumulative spend diverge, then the project manager knows that he needs to understand what is going on and that he may need to take action to bring the project back on target. These two values should be plotted as line graphs for easy visualisation. However, the raw data will be required to make sense of what is actually happening.

By way of example here are three scenarios highlighting typical financial profiles for a project.

Delayed ramp up

In this scenario it takes more time than expected to get resources in place and so some tasks are delayed. However, they are either not on the critical path or some adjustment to the project schedule is able to contain the impact and no additional resources are required. This is called a delayed resource "ramp up" because when plotted on a graph, as below, the gradient (ramp) is less steep than planned.

Initially the project looks like it has an underspend. The project manager needs to ask the question "Why?" Without doing that and having the estimates to complete the work he might think that things are looking really good.

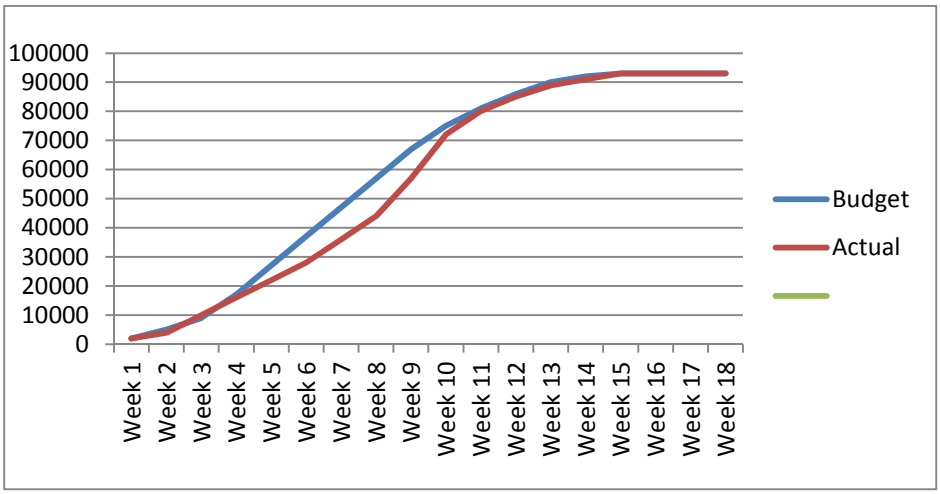

Figure 29 Cost Tracking v Budget – Delayed Resource Ramp Up

Critical delay

The next scenario is an apparent underspend early in the project but this is due to some issue that has arisen, perhaps a key task on the critical path has been under estimated, either because of an error in estimation or simply that the magnitude of the task was not really visible until the work had been started.

In any event more work has to be done to recover the affected task and this delays its completion.

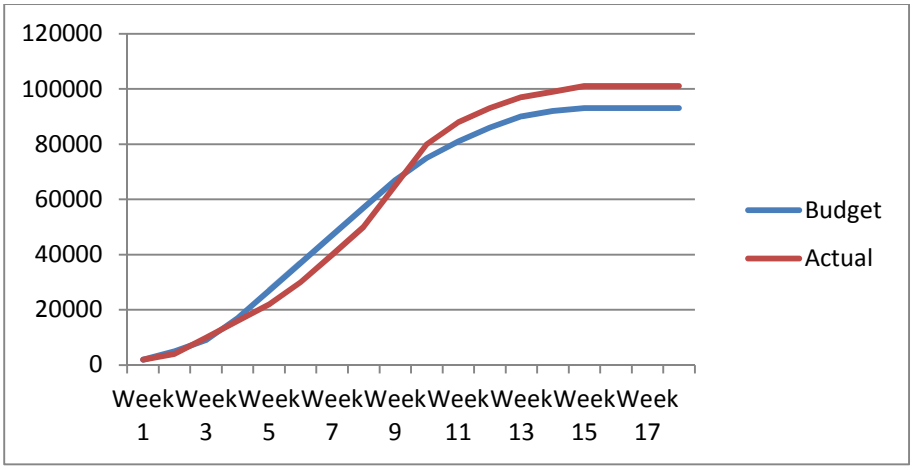

Figure 30 Cost Tracking v Budget – Critical Delay

The delay in finishing this task has a knock-on effect, delaying the start of successor tasks.

More work is then required to speed up the critical task that is running late and more effort may also be needed to speed up the successor tasks to keep to the overall project schedule. This leads to a project overspend

Initially, the first two scenarios (delayed ramp-up and critical delay) will look the same, week 5 shows a growing underspend. It's only by reviewing the situation that the reasons become apparent and the appropriate responses can be set in play.

Without active project management, both of these situations could lead to late and massively overspent projects as the situation would simply get worse. Neither would finish on time.

Early overspend

An overspend early in the project would look something like the next graph.

Enquiry might show that manpower has become available earlier than expected and so the project team has ramped up faster than planned. For this reason, provided the project keeps its pace and that the project manager doesn't hang on to the team members when their job is completed early, he can still bring the project in on budget and possibly ahead of schedule.

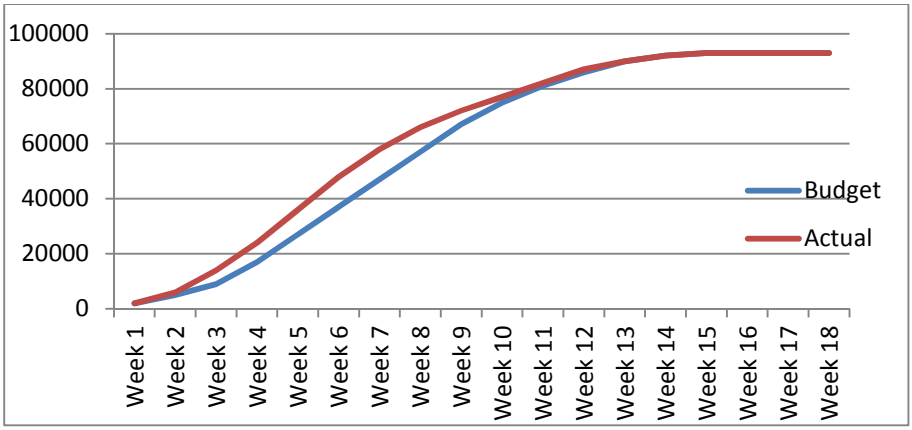

Figure 31 Cost Tracking v Budget – Overspending Project

Always ask "Why?"

The key lesson from these three examples is that the project manager must always be sure to get the data he needs to see what is going on. Simply measuring things and assuming that an underspend is good, or that overspend at any particular point is bad is insufficient.

Projects need active management therefore the project manager must look past the high level view, good or bad, and always ask "Why is that happening? What is going on?"

Change Management

"Change is inevitable – except from a vending machine" (Robert C. Gallagher, director of the Green Bay Packers)

Even if you have never heard of him before, you know that Robert C. Gallagher is right - on both counts. But only one is of importance to the project manager and it's not the vending machine! Change is inevitable and a key part of his task is to manage its impact upon the project.

Uncontrolled change leads to uncontrolled projects and without exception uncontrolled projects fail. At best they overrun, and at worst they never ever deliver; their budgets escalate and money, and opportunity, is wasted. How many news reports have you heard concerning government, military and public projects that fit this profile?

A vital weapon in the project manager's arsenal, change management is a process that gives visibility into the heart of the project. It allows the project manager to ensure that necessary change is carried out in an orderly manner, which is reflected in appropriate, visible and agreed changes to project scope, budget and/or timescales. Because it is a mechanism that makes change visible it allows the customer and stake holders to understand the impact of changes and provides the opportunity to assess the benefit of a proposed change. The decision may then be to not invoke the change.

Change management is one of the disciplines and tools that help a project manager manage his project. The others already discussed are:

- Well considered and agreed requirements: If the requirements are incomplete or incorrect in the first place, then there will be tremendous pressure to change them as the project progresses, so it can deliver something useful.
- Accurate estimation: If the effort required and the cost of the project is miscalculated then the programme cannot deliver the goods. It will overspend and under deliver again leading to huge stresses and pressures to change the plans or deliverables.
- Accurate planning: If the project tasks, logic and schedule are not well planned then the project will not be able to deliver the required outcomes,

leading again to huge stresses and pressures to change the plans or deliverables.

- Effective Documentation Processes: Documents are used to capture knowledge, agreements and plans and provide organisational memory. It allows this knowledge to survive people and be communicated over time. The documentation processes are also a key tool for efficiently and effectively communicating change.

- Risk and Issue Management: The process of risk management is overtly about attempting to predict issues that will force otherwise uncontrolled change. Then it is about building mitigation into the project in the first place, thus minimising the impact of change.

- Monitoring and Control Systems: Once the project is running, effective progress and estimate-to-complete-the-work reporting is required. This is the window on what is happening. Without it, much change can go unnoticed causing significant surprises at the end of the project as it fails to deliver its outcomes, overspends and overruns.

These elements form a foundation which underpins project change management. A change control process then enables the project manager to record and review changes, consider their impact on the project triangle (scope, time and cost) and arrive at an agreement as to what should happen. In this way all three elements of the project triangle can be changed accordingly, allowing the scope to be extended in return for lengthening the project time line and increasing the project budget.

Figure 32 The Foundations of Change Management

Frequent Causes of Change

As discussed above change is inevitable. It's just that some situations increase the likelihood of changes with big impact. In many ways the project manager's task is as much about managing change as it is about conducting the planned and orderly flow of the project.

What are the factors and sources that bring about the need for change?

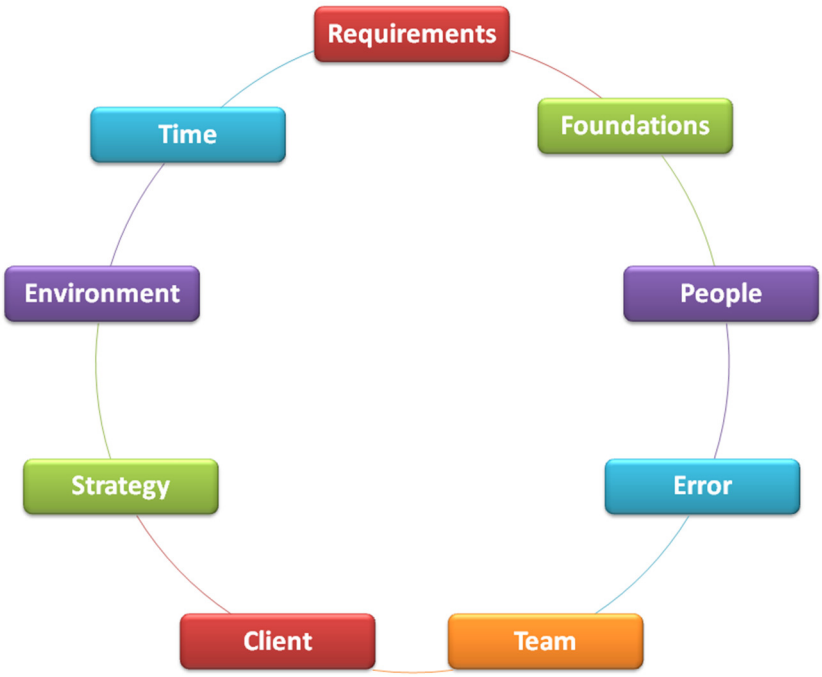

Figure 33 Sources of Change

Change in requirements

Here the customer or the implementer has come to understand that a change is required. Typically the customer has realised that the solution needs to be different in some way or the project team has discovered that they need to change the solution for some reason.

A Problem with the foundations

We have discussed the project foundations above. If any of these foundations are badly laid then more change with greater impact will simply happen.

People

The people in a project are a huge source of change in that that they join and leave projects according to a whole set of factors beyond the project manager's control. For instance they leave the organisation, they get ill, problems arise elsewhere and they are the only ones who can fix them. Their previous project overruns and so they cannot join the project on time.

As a result of such events new people join projects, even if only temporarily. This churn of staff impacts the effectiveness of the project team as new people have to come up to speed, or perhaps are not as effective as those they replace. It is also one reason why excellent documentation and document management is required. The loss of information resulting from staff churn can be devastating if things are not properly documented.

Common and consistent processes, familiar to all the staff, are also important. They allow people to join projects and workout what is happening and what they must do quickly and easily.

Error through misunderstanding or mistake

These arise because a team member did not understand what was required of them or made an error. The result is that the project begins to deviate in scope, time or cost. This can easily happen and is why excellent communication skills are required, complete and accurate documentation is mandatory and peer reviews are best practice. These mechanisms can minimise the consequence of misunderstanding and mistakes.

The team - "If I just…."

In some projects there is a desire on the part of the implementer to do just a bit more, to make things better. This is a natural desire and often it's hard to define the boundary between what is needed and "gilding the lily". Also, in every task there are always boring bits to do and there is a temptation to put them off by finding more interesting activities which may not be needed. Whilst the impact on an individual task of all this might be small, if it happens to multiple tasks the cumulative effect can be huge. The project and cost can overrun.

The Client - "If only you could…"

This is similar to the "If I Just…" problem but it's the customer asking for something a little bit extra. In some projects, particularly software projects, extras are often very easy to do and the implementer, who is by nature a creative problem solving type, is often inclined to do it. The customer may be naïve in their regard of the impact of what they ask, although sometimes they may intend to avoid formally asking for the change in the hope of getting it for nothing.

However, although a single instance of this may not be a problem, if it becomes common then the project will overrun and overspend.

Change driven profit strategy

This is a commercial strategy that relies upon change to drive profits. It is often encountered with large, outsourced fixed price contracts of long duration where a key selection criterion is lowest price. These are characteristics of many government, military and public sector projects, and as we have already observed, the pages of the newspapers are littered with the corpses of projects such as these.

The project is initially under-priced in order to win the business. This means that the project, as sold, is probably loss making. However, knowing that the requirements will inevitably change, the contract tightly ties down the deliverables so that the supplier can maximise the charges for changes. In this way they make a profit but from the customer's perspective the project inevitably overruns on time and costs escalate. Many are cancelled wasting huge amounts of money.

One might be critical of the cynicism of the suppliers; however the unrealistic approach of customers is also to blame. The concept that the lowest price, rather than the fairest price, wins sets the scene for what will inevitably follow. In some cases the customers are just as cynical for instance they may use a "reverse bidding" process. The competitors are all invited to a room where they bid for the business. The process is conducted in rounds and in each round the most expensive supplier is excluded. This kind of process inevitably leads to huge problems.

When it comes to it, seeking the lowest price is not always the responsible strategy. As the adage goes: “You get what you pay for.”

Change prone environment

Some customer situations are such that they are prone to rapid and frequent change. This is because they operate in a complex environment with many individual elements, each of which is prone to high rates of change. They may also be working in a sector where due to political, economic, technological and social factors they serve people in an environment that is ever changing or is simply unstable. The telecommunications sector is a change prone environment. The service provider’s network is very complex, involving many different systems from many different vendors. The technology available is always advancing and the market place is incredibly competitive. It is in a state of constant, day by day change.

The sands of time

Change is a function of time. You don’t have to be a rocket scientist to understand that the longer the period you observe the more change there will be. This means that the longer a project takes the more change it will encounter and need to accommodate.

The corollary of this observation is that the longer a project takes the more likely it is to take even longer.

There are some projects that are simply so big and complex that they have to take a long time. The fact that such projects are often in a change prone environment compounds the problem. Again these are characteristics often seen in government, military and public sector projects.

This brief and incomplete summary of the nature of project change serves to highlight the vital need to manage and control change.

Managing Change

The impact of change can be enormous and attempting to bring a project back under control can be difficult. However, managing change from the outset is quite simple and straightforward – it is easy to do.

The whole process of responding to a change can be captured in a single document of just a few pages. It is typically called a Change Note or a Change Request.

The process for managing change is slightly different dependent upon whether the change results from a controlled change in requirements or from the inherently uncontrolled causes.

Controlled change

Where the customer or the project team recognises a need for a change in some aspect of the project triangle, then a controlled change process can be undertaken. Using the Change Note the required change can be described and requested.

Uncontrolled change

Change that is forced on the project for uncontrolled reasons, i.e. it simply starts to happen, must first be identified. This is where the project manager's time, effort, risk, issue and budget monitoring processes come into play alongside the outcome of various reviews that might take place.

The first step here is to understand what is happening and why, then to determine its consequences. One of three actions paths can follow:

- The project manager and team agree steps to curtail the change and bring the project back on plan. This might happen if the change is due to an over enthusiasm or misunderstanding of requirements

- The project manager and stakeholders agree to absorb the change and adjust the project plans as is necessary to recover the situation. This might happen if the changes are positive, not too large and it would cost more in money or time to remove them.

- Feed the change into the controlled change process initiated by preparing a Change Note.

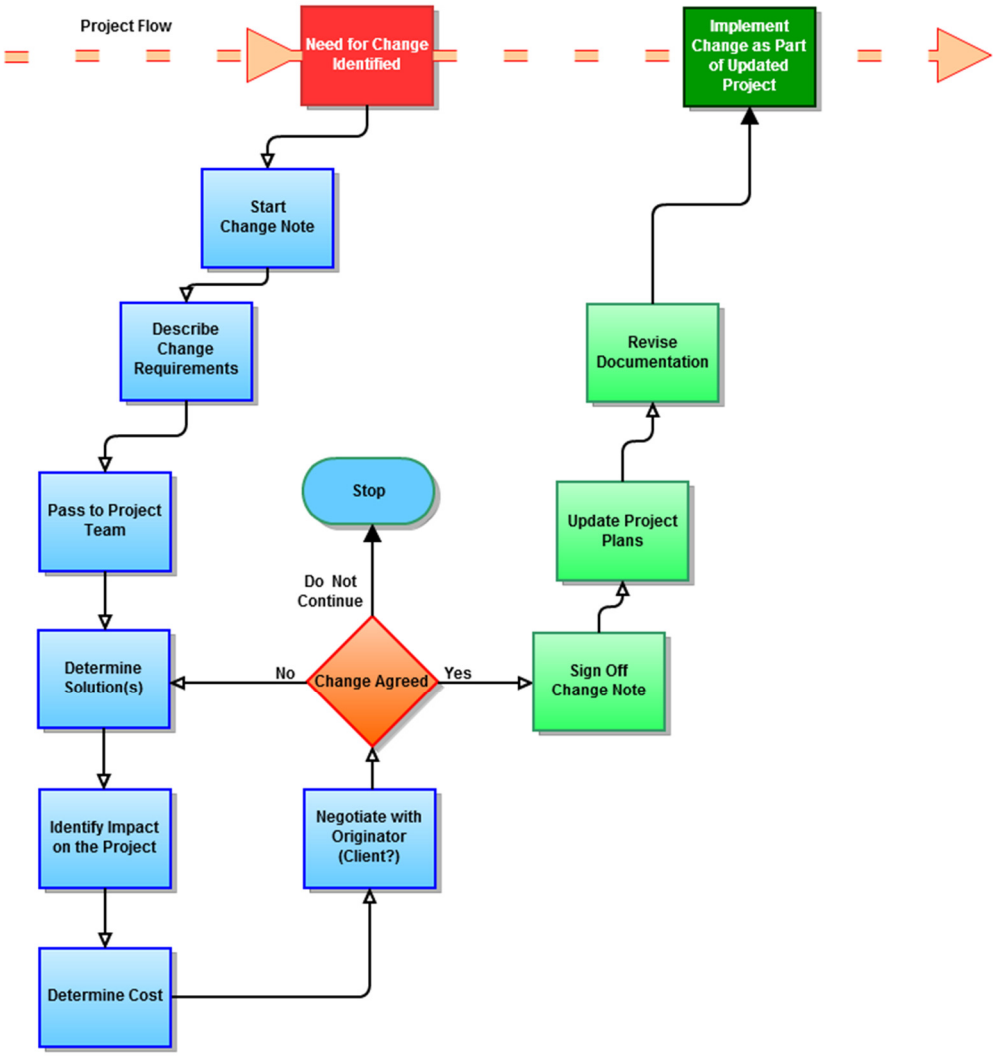

Figure 34 Change Control Process in Overview

The Controlled Change Process

The Change Process generally passes through the following stages and pivots around the Change Note. The Change Note is a single document used to capture information and track the process. It is used to document both the change and the response.

Describe the requested change

The requirement for the change is described, including the reason for the change.

Describe how the change would be implemented.

The solution would be described in terms of the project triangle: scope, time and cost.

Identify the implications of the change

Identify any implications for other aspects of the project. For example, perhaps the change may affect other parts of the project scope meaning that some parts would need to be reworked. Alternatively, may be the extra work required would delay a critical path milestone and so affect the end date of the project.

Obtain agreement

Once the nature and impact of the change is understood, including additional costs and lengthened timescales, it can be reviewed by all the stakeholders.

- They may agree to not implement the change because the impact is too great or;

- They may agree to implement the change and the customer thus agrees to the change in costs and timescale.

On occasion it may be appropriate for the supplier to show goodwill to the customer by deciding to absorb the impact of the change on the project. This would be possible thanks to planning for contingencies. Because the project has only limited contingency there is a limit to how many times this can happen.

Implement the change

Finally, if the change is agreed, the project team will implement it. This may first require reworking the requirements, various solution documents and project plans.

The project now continues as normal but with updated purpose and plans.

The Change Note

The minimum characteristics of a Change Note are set out in the table:

The Characteristics of a Change Note
➢ Single sheet A4 form with attachments if needed.
➢ Has a unique identity controlled by a register.
➢ Lists affected project documents.
➢ Names the person who raised the request and who will agree to the request.
➢ Indicates the Note's Status: Open, Rejected, Accepted, Completed.
➢ Describes the requirement and the reason for the change.
➢ Describes the actual changes to be implemented.
➢ Declares the consequent changes to the project time line and additional costs.
➢ Authorisation signature for essential stakeholders. E.g. customer and project manager.

Figure 35 The Change Note

Change Notes should be kept in a paper file to retain the actual signature and be available to all team members. Soft copies can also be made available on line.

Maintaining Course

It's worth stepping back for a moment to regain the project management big picture.

We identified the project triangle earlier and we keep coming back to it: the elastic, interconnectedness of project scope, project cost and the time required to complete the project. All the detailed monitoring and process that we have discussed have been about monitoring and adjusting these three constraints in order to maintain control of the project, delivering the solution that meets the agreed requirement to time and within budget, subject to the Change Control process as discussed above.

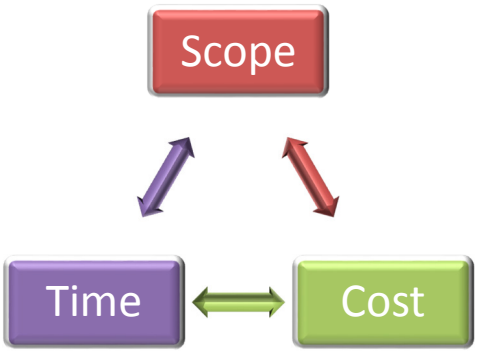

Figure 36 The Project In View

Tweaking the Project Triangle

When something goes wrong with the project it will primarily affect one of the project triangle constraints. Just as a squeezed balloon bulges somewhere else, so a change in one of the constraints will "bulge" out in one or both of the other two constraints. This allows some broad strategies to come into play to regain control of the project, dependent upon which of the constraints is most important to the customer and project stakeholders. The Project Correction Strategies table sets out some examples.

Choosing the right strategy depends upon understanding what is happening in the project. This highlights the importance of the project monitoring and review processes already discussed.

Scope	Cost	Time	Comments
↑	↑	↑	**Issue:** The project scope increases causing more work. **Consequence:** Time and costs increase and the project is set to overrun.
↓	→	→	**Response 1:** Reduce the project scope and bring cost and timescales back to plan.
↑	↑	↑	**Response 2:** Redefine project requirements, solution and plan to deliver the increased scope at additional cost and in a longer time.
→	↑	→	**Issue:** The project cost increases due to factors such as pay awards, inflation or foreign exchange rate. The project scope and time line remain the same. **Consequence:** The project will overspend and run out of money before it is completed.
→	↓	→	**Response 1:** Find cheaper sources for use later in the project and so bring the price down
↓	→	↓	**Response 2:** Reduce the project scope reducing the timescales and cost, bringing them back on track
→	↑	↑	**Issue:** Project duration (time) has increased because as the project progressed it became clear that some aspects required more work than anticipated. **Consequence:** While the Scope remains the same, project Cost and timescales are set to overrun.
↓	→	→	**Response 1:** If the time line is important then reduce project scope, assuming that the project would still deliver something useful. This will bring the cost back down and maintain the time scale.
→	↑	→	**Response 2:** If the scope cannot be reduced but the time line is critical then the project needs more effort, e.g overtime working or more people assigned in order to deliver the increased scope on time. This increases costs.

Figure 37 Project Correction Strategies

The Goal

Because Christian service is a calling, all kinds of people from all kinds of backgrounds with all kinds of skills find themselves in all sorts of situations needing to do things for which they have not been trained. To find oneself in such a situation is stressful. To find oneself in such a situation with the added burden of not wanting to waste limited but precious resources or facing consequences of significance if things go wrong, can be extremely stressful.

From the perspective of the Christ-centred servant leader, as a project manager who is seeking both to fulfil your own potential and to enable those that you lead to do the same, to begin a task for which you are not properly equipped is counterproductive. All the more so if you are leading a project of significance.

The goal of this book has been to address the need for you to be equipped to be a project manager. It has unpacked the concept of a project and the skills required to plan and manage one. It will be useful for both the untrained and inexperienced project manager as well as a reference for the skilled but infrequent project manager.

Whilst the innovative idea of the canvas is not new it has never before been applied to a project. It simplifies the overview of a project and will help you to keep it all in a single view. Together with the Ten Steps to Effective Project Management, incorporated in this book, you gain a "helicopter view" of what a project is all about. There follows instruction in necessary planning and management skills that pertain to a project. All designed to help you know what it is that you must do.

Not all projects are the same and not all projects will need the full rigours of project management to be applied. You must consider the nature of your project and apply as much or as little as is necessary to permit a successful outcome. Ensure that you:

- Have clear and complete objectives that are shared by all the stakeholders and participants, i.e. everyone is agreed as to exactly what must be achieved.

- Have well considered plans that enable everyone to know exactly what they have to do and when.

- Employ transparent monitoring so that you always know how much work is still to be done to reach the end.

- Maintain tight control of change to minimise the likelihood of overruns on time and cost.

- Maintain a well-considered view of risks with pre-determined mitigation plans to keep the project on track.

- Know when the project is finished as agreed by all concerned.

- Remember, projects are about people and people are people not machines.

- In the context of a volunteer workforce, remember to engage them in the crucial definition, planning and problem solving stages of the project to develop their ownership.

- Remember the additional factors that affect volunteers and maintain realistic expectations of their capabilities, building that into your plans.

Keep these things in mind and pick and adapt the tools I have shared with you as needed. Then enjoy your project and reach your full potential as a project manager employed in the Kingdom of God.

Appendix 1: Project Information

This appendix provides a list of information that is required in every project. In big, complex or formal projects each will need its own document type. In smaller or more informal projects each area will need to be addressed but it may be sufficient to have a single document or folder. It might be sufficient to file copies of email correspondence.

Relying upon email has its dangers because its essential nature is one of dialogue not documentation. These dangers include:

- Confusion
  Because of the nature of email (and verbal) dialogue, agreements may seem clear at the time but the parties may have had different understandings of the words used. It may also seem clear to one party but not the other that an agreement has been made.

  If a dialogue approach is used the parties must double check that an agreement has been reached and then it must be documented and evidence must be collected that all the affected parties agree that the document represents their agreement.

- Forgetfulness
  People genuinely forget things and with time detail becomes blurred. Therefore email (and verbal) agreements, made with the best will in the world can cause problems. Explicitly writing down the substance of the agreement and specifically requesting an indication of agreement is always best.

- Loss of Information
  Emails are notoriously easy to lose. Even with good search tools they can be in

there somewhere but finding them again may be impossible. Filing documents preferably ones with signatures on is always best.

All in all, specifically written, uniquely identified and formally agreed documents, which are easily accessible by all concerned, are best for keeping track of what is going on and what has been agreed.

Where agreements are lost or forgotten disputes arise and cannot be definitively resolved. Unresolved disputes tend to lead to acrimony. This means that none of the parties concerned are able to achieve their full potential and bring glory to God. Not a place that a Christ-centred servant leader wants to find themselves.

Good documentation and filing is key to effective project management.

Document Types

Requirements Statement

This records the Customer Requirements. What it is they want to achieve.

Content includes:

- Background and goals.
- List and detail of specific functional requirements including priorities. All ordered in logical sections.
- List and detail of the non-functional and other obvious, and therefore easily overlooked, requirements.
- Quality requirements.
- Appropriate standards to be applied.
- Assumptions.
- Required timescales.
- Compliance matrix.

Solution Statement

This is the statement describing how the customer requirements will be met. It may be supported by other documents detailing the design.

Content includes:

- Overview of the solution.
- Details of how each of the requirements will be met.
- Appropriate standards that will be applied.
- Timescales.
- Compliance matrix.
- Assumptions.

Solution Design Details

This is whatever documentation is necessary to capture the details of how each requirement will be achieved so that the project team know exactly what to do. It may not be needed. If it is needed it will typically be at a lower level of detail than has been provided in the solution statement.

Content is dependent upon the project.

Work Package Specifications

This defines the set of tasks required to achieve the project deliverables. It may be achieved using a full blown "Work Breakdown Structure".

Content includes:

- Diagram of Work Breakdown Structure.
- Description of the hierarchy.
- Description of each work package.

Procurement Lists

The list of all the things that need to be purchased for the project, where they will be purchased from and when they are needed.

Content includes:

- List of items with sufficient detail to purchase them.
- Description.
- Part numbers.
- Identification of work package that requires them.
- Required delivery date.
- Expected/budgeted price.
- Suppliers.
- Cross-reference to any quotes obtained.

Contractor Agreements

The contracts with any contractors for outsourced work.

Contracts need to include:

- What is being supplied.
- Cross-reference to any descriptive documents, specifications, proposals or quotes from the supplier
- Underlying assumptions and prerequisites
- Time scales
- Price and payment terms

- General terms and conditions

Customer Acceptance Plan

The plan for customer acceptance.

Content includes:

- Who does what.
- Where and how acceptance will take place.
- Problem definition and resolution times.
- Overall acceptance test/check pass criteria.
- Out of scope elements.
- Who agrees that a problem is cleared.
- Model Acceptance Certificate.
- Who signs Acceptance Certificate.
- Number and type of permissible problems.

Customer Acceptance Test/Check Script

The specific details of the actual tests and checks to be performed. The actual content and style of presentation will depend upon what is being tested or checked.

For something like a web site the contents includes:

For each function or feature to be tested:

- Unique reference.
- Set up and starting conditions.
- Description of the test in terms of:
    - keystrokes or controls used and data entered.
    - textual and graphical content and layout.
- Expected results.
- Definition of what constitutes a test pass or fail.
- Space to record actual results.
- Space to record notes.

Acceptance Certificate

The completed acceptance certificate.

Content includes:

- Name or description of the thing being tested.
- Test completion date.
- Cross-reference to Acceptance Test documents.
- List of problems and reference to resolution plan.
- Project manager's approval signature.
- Customer's approval signature.

Project Plan

This defines the project processes and team structure:

Content includes:

- Team members.
- Who performs which roles?
- How project reporting will be conducted.
- When project and risk reviews will occur.
- Who has sign-off authority?
- Who to involve when problems cannot be solved.
- How changes will be managed.
- Distribution lists for particular kinds of information and documents.
- Contact lists for project team and customer.

Project Schedule (Gantt Chart)

The project flow logic and schedule. This is a live document in that it is used to track progress and it will change to show how the project flow is adjusted as issues arise. Refer to the Project Plan section.

Risk and Issues Register

The register of pre-identified risks and any issues that arise during the project. It contains the risk scores and sets out the mitigation actions. Refer to Project Risks section.

Working Budget

This shows the total budget and the cumulative week-by-week budget for the project. This is a live document in that actual spend and the cost estimates to complete the work are shown as they are reported. Refer to Project Costs section.

Change Note

The document used to manage changes in the project. Each change has its own note. Refer to the Change Management section.

Appendix 2: Seven Steps to Good Requirements

The goal of the requirements statement is to express what needs to be achieved in a manner that allows a solution or approach to be devised that will achieve the goal. In effect, the requirement statement is the check list that, when completed, allows everyone to know that the goal has been achieved.

The exact nature of the requirements document will depend upon the scope and nature of the goal. This means that they will vary considerably dependent upon the type of problem being addressed. This appendix sets out seven steps in the process of identifying, documenting and communicating a set of requirements. Dependent upon your situation it will require adaptation to suit your goals. However, a basic approach will employ the seven steps set out in Figure 38 Seven Steps in Preparing Requirements

Figure 38 Seven Steps in Preparing Requirements

Step 1: Outline the Concept

All projects start with a vision, the initial idea or concept. Sketch this out in words and pictures. This very process will help to crystallise your thinking. At this stage it doesn't have to be a fully completed concept.

Remember the first question you need to answer is "What is it you want to achieve?" Don't be tempted to design the solution until you know what you want to achieve. This is a path that will likely limit your perspective and vision, and it may well result in a solution which is not as effective as it could have been. You might need to imagine a solution to help you work out some of the questions you need to address, but do your best to avoid that at this first stage.

So:

- Do the basic research to quantify and qualify the problem. What is the goal? What will it look it? What will the benefits be?
- Identify the hidden requirements. Ask yourself what other things have to happen for the concept to work or perhaps even be possible?
- Identify the internal and external constraints. These are the things within the idea and outside of the idea that will shape what is possible and achievable.
- Try and take a realistic view of costs and consider the cost/benefit of the concept.

Having considered these factors, scope the problem to be solved and sketch out the benefit to be achieved – the vision of a different future that needs to be brought about.

Step 2: Identify the Key Stakeholders

Having scoped the problem and sketched out the concept identify the stakeholders. These are the people who have, or might have an interest in the problem or its solution and can exercise positive and negative influence.

Stakeholders will include:

The Project Sponsor(s)

Project sponsors are people of influence who can open doors, facilitate funding and the like. They will have a keen interest in the problem area and they may have commissioned the project in the first place.

The Users

These are the people who will use or be the beneficiaries of the concept when it is fulfilled. It is their needs that must be served. Remember there may be more than one type of user. For instance where a service is provided there are at least two types of end user.

The End Users

These are the true end-user who benefits from the service or use the solution. In a Doctors surgery the patients are the end users.

The Intermediate Users

These are not the end users but may be people who for instance are involved in the delivery of the solution to the end users. In the Doctors surgery example there are two types of intermediate user: the medical staff and the support staff.

Supporters and Opposers

Supporters and opposes are people with an interest in the project and who may have a positive or a negative attitude and influence.

Stakeholder Relationships

A helpful tool for understanding the needs of the relationships with stakeholders is the Power/Interest Matrix.

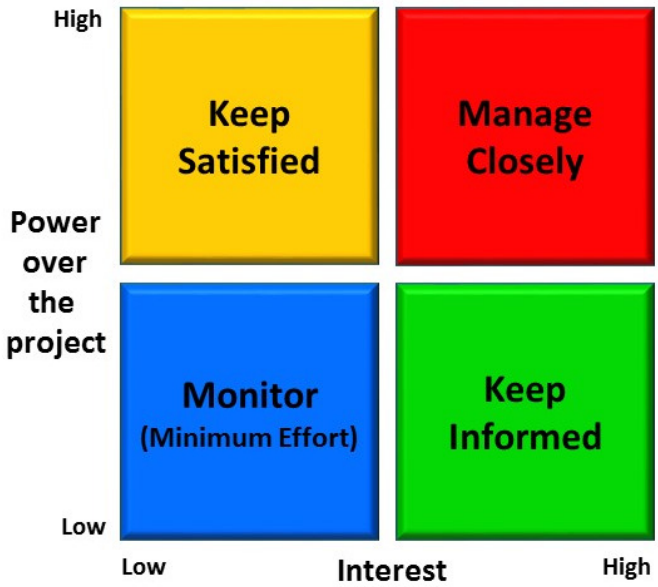

Figure 39 The Power/Interest Matrix

Consider each of the stakeholders that you have identified and place them in the matrix. The four quadrants indicate the goals of your relationship with them. They are defined by the level of **interest** in the project and the level of **power** they can exhibit over the direction and success of the project.

High Power/High Interest – Manage Closely

These stakeholders are crucial to the project. What they say and do matters, therefore keep them fully engaged and make every effort to satisfy their opinions and recommendations. Relate to them as individuals.

High Power/Low Interest – Keep Satisfied

These individuals can be influential so you need to keep them informed, on-side and positive but don't bore them with too much detail unless it is crucial. Relate to them as individuals. Be aware that the interest of these people may be awakened and so they move to the high power/high interest quadrant. Then you will need to change how you relate to them.

Low Power/High Interest – Keep Informed

These individuals are not movers and shakers but if there are a lot of them their collective voice may be influential with the high power stakeholders. Keep them up to date and check they have no issues.

Low Power/Low Interest

Monitor them but don't overload them with information. Don't spend too much effort in maintaining the relationship with them. Be aware of them as the very fact that you inform about the project may cause them to change quadrant as they develop a high level of interest in the project.

Using this model plan your interaction with the stakeholders as you develop the requirements and run the project. Questions you need to consider are:

- What is their interest? Is it financial, political or spiritual and is it positive or negative?
- What is their motivation? Why are they interested? What do they wish to achieve?
- What do they think about the concept, goal and vision?
- What information do they need and how do they want to receive it?
- Should their influencers be seen as stakeholders?
- If they are negative how can you bring them on-side or how will you manage their opposition?

Step 3: Capture Requirements and Refine the Problem Statement

Having sketched out the problem, identified the stakeholders and begun to engage with them, work at understanding their perspectives and what they need or want to achieve. It will be necessary to negotiate the final set of requirements or even give up something you want to achieve in order to help the stakeholders support your vision.

The intermediate and end users of the solution are very important stakeholders. The delivered solution must meet their needs otherwise the project will be pointless.

This step refines the problem statement and discovers detailed requirements.

There are a number of approaches that can be taken to work out the requirements for the solution that will fulfil your vision. We will look at a number of them, but bear in mind that we are engaging in a generic consideration not one that is necessarily specific to your need. The potential problems to be addressed cover such a wide scope that it is impossible to specifically cover everything. Look at the approaches described and use the methods that seem best suited to your situation; be prepared to adapt them to fit.

The approaches looked at fall into three main categories

- Observation
- Interview
- Workshops

A Day In the Life Of (DILO)

This is an observation method that would be used for a product or service. The person working out the detailed requirements shadows a number of end users and intermediate users by spending a typical day with them. The goal is to observe and record what they do, also finding out the purpose behind the

things they do. This allows their needs to be identified. When DILO is used with a number of end/intermediate users the discoveries are combined and analysed to identify the requirements. The insight gained can also lead to discovering ways of improving how they fulfil their tasks. Being open minded is important because the process may identify issues and requirements you never thought existed. Similarly your interaction with the people may trigger novel and innovative ideas.

Stakeholder Interviews

Stakeholders, including intermediate and end users are interviewed. Remember the stakeholder includes the project sponsor and the various influencers and gate keepers. They have needs from the project too, albeit the benefit they will receive will be different from the intermediate and end users. Gate keepers are important because unless they are onside they can block progress. They control access to things such as influencers, resources, money and permissions.

When it comes to interviewing users be sure that you are interviewing the right people. Remember that someone's boss or supervisor or carer does not know exactly what the people they are responsible for actually think and feel about their current situation. So, for instance, you need to speak to both boss and staff member, carer and receiver of care, service provider and customer.

Interview the individuals seeking to identify their real needs. You can use questionnaires to facilitate this. It is best to conduct the interviews in the individual's normal situation relevant to the requirements being investigated. Remember to enquire about other sources of information such as cheat sheets and working notes that the individual may have prepared to help them with their situation. Also ask about enquiries they make of others, e.g. fellow workers or end users, about what to do in specific situations.

Remember to use open questions. Here are some basic question you can use:

- What do you do?
- What is the reason that you do this?
- What if such and such happened?

- What if you wanted to do such and such?
- Why do you do that?
- How do you know to do that?
- What goes wrong and how do you deal with it?
- What could stop you from completing your task?
- What or who do you depend on to complete your task?

Then, when you have your answer remember to check and confirm your understanding.

Group Workshops

Working with a whole team or group of representative intermediate and end users in a workshop can be highly beneficial. It allows you to model an entire scenario through a role play approach and initiate discussion between the workshop members. This will reveal details and issues that might otherwise be missed.

Using sheets of paper on a table, yellow sticky notes on a wall or a diagram on a white board sketch out the process that you need to model. Have the workshop members step through the process, each playing a role in its execution, highlighting decision points and outcomes at each stage.

If you are using sheets of paper or sticky notes, title each process and number them in sequence, record the details of the process, decisions made, specific needs, issues, outcomes and next step. In this way you can document the process and identify the requirements.

When this is completed have the workshop members highlight the issues and requirements that are important to them. Then after analysing the results in the light of all the input and observations you have received you can later re-run the workshop with your new solution and check that it works.

Creative Thinking Approaches

The problem analysis concepts that we considered in Meeting Challenges with Creativity can help with analysing and stating the problem in such a way that a novel and innovative approach may be identified.

Assumptions

We have already seen that assumptions are things that are accepted as true or as certain to happen, without proof.

There are two kinds of assumptions: The visible, stated assumptions and the invisible, unstated ones. The later kind kill projects, therefore they need to be identified and addressed.

Assumptions generally mean that something is expected to exist, happen or be done without explicitly telling anyone else about it. So, if in your project you assume that someone will provide some materials or a service then your plans become implicitly reliant upon that assumption. When it doesn't happen the project is in trouble. It may fail completely at that point or be forced to overrun and overspend.

The key is to make invisible assumptions visible by identifying them and writing them down, and then turning all assumptions into explicit requirements and obligations on identified parties. That way you know they will be addressed as a solution is devised. Those that are not addressed will become visible as the solution is reviewed against the requirements.

As you gather requirements and later on devise a solution, it is vital that you identify and state all assumptions as requirements and obligations or identify them as risk items in a Risk Review so they can be addressed.

As you interview stakeholders, intermediate users and end users and run requirements workshops, be aware of the assumptions that you are making and seek out the assumptions that others are making.

Exceptions

In the language of processes and projects an exception is when something does not happen as expected, i.e. something goes wrong.

Because of the way people think, we naturally tend to focus on what happens when everything goes right, even when we are gathering requirements and devising solutions. But if our solutions are to be robust they must still work when things go wrong, when there are exceptions to the expected process. This means when working out the requirements you need to consider what might go wrong and include appropriate defences. In some cases it may not be worth the effort of creating a defence in others it will be vital.

Deliberately consider the exceptions in your requirement gathering interviews and workshops.

Step 4: Categorise Requirements

Not all requirements are the same and it is helpful to classify requirements by their type. This helps to order them and latter prioritise them as you prepare your statement of requirements. Broadly you can categorise requirements as follows.

Functional

These are the elements of the solution that when provided meet the needs of intermediate and end-users.

Operational

These are things that have to happen in the background to make the solution work and may not be directly visible to the users. Many of these will be assumptions that have been identified and turned into requirements and obligations.

Technical

These are technical considerations that must be addressed within the total solution. The scope of these requirements is broader than technology and includes other specialist areas such as financial, regulatory or legal processes that may underpin or influence the envisioned solution.

Safety

Safety considerations are important and ought to be dealt with as a separate category of requirement. This will show that they have been explicitly considered.

Political

These are issues that may affect the permissible solutions and hence need to be considered in the requirements. In this context the term 'political' has the widest possible scope and will include some of the indirect concerns of the most influential stakeholders, e.g. a desire to be associated with success, the desire to link this project with another area of concern and so on.

Transitional

Transitional requirements are the things that must happen so that the new solution can be introduced. They will only happen one time or perhaps be phased out over a short period of time.

Step 5: Record and Prioritise Requirements

So far we have considered how to determine a set of requirements. They must now be recorded in a document.

The Requirements Document

The document should be structured according the classifications we have just discussed. Statements of individual requirements should be collated against the categories and subcategories that emerge so that related requirements are kept together. Where repeated requirements occur, as might be the case for fire doors in a building, say, they should be written only once and referenced where appropriate.

Sections and subsections should be titled and numbered. The numbers enable easy cross-referencing.

The document should comply with a documentation control scheme, see the chapter entitled 'The Importance of Documentation'.

Requirement Clarity

The individual statements of requirement should be as clear, precise, complete and unambiguous as possible. Any confusion or omission in the requirements will show up as problems latter on and may get all the way through to the delivered solution. For this reason, having others review the requirements is an essential part of the process.

Requirement Priorities

Often the full scope of the solution needed to meet the requirements turns out to be impractical or too expensive to realise. The approach is then normally to reduce the scope by deferring some of the requirements. To aid this process the requirements must be prioritised.

Prioritisation indicates which requirements are mandatory and which are simply nice to have. There may be three or four levels of prioritisation. Some can be classified as a future requirement with the current requirement that the solution should be modified easily later to include them.

Conflicts and Feasibility

As the requirements are expressed and reviewed it is possible that conflicts between specific requirements may emerge. These conflicts need to be resolved.

Once the requirements are drafted, feasibility can be assessed. The following basic questions need to be considered:

- Is it really feasible at all?
- How can it be changed to become feasible?
- How much can be achieved?
- If some elements must be deferred is it worth proceeding?
- Is there a completely different approach that can be taken? See the chapter entitled 'Meeting Challenges with Creativity'.

Completion

Once all these aspects have been considered and the issues that have emerged have been resolved, the requirements document should be completed and made available for review.

Step 6: Review and Confirm Requirements

Having captured the requirements they now need to be verified by the stakeholders, intermediate users and end users. There are two approaches that can be taken:

Workshop

Call a representative user panel in to a workshop. This may be a whole team that will use the solution or be a selection of intermediate and end users. The goal will be to step through the requirements, testing them for validity and completeness. Also, it is important to again identify the things that can go wrong and how these exceptions will be handled as well as testing for undocumented assumptions.

It is important not to forget the other key stakeholders in the process because they have goals and objectives that must be met. It may not be appropriate to include them in a detailed workshop. It may be better to meet with them individually or in a separate meeting.

Formal Review

In a formal review the requirements document, and later on the solution description document, will be sent to the identified stakeholders, including representative intermediate and end users. They will individually review the document and collect their observations and comments.

A formal review meeting is held in which the reviewers gather and step thorough the document page by page. The reviewers share and discuss their comments and observations agreeing a resolution or assigning an action to resolve the issue.

The process cycles until all the issues are resolved and a final version of the document is ready for issue.

Document control disciplines are essential during this process. See the chapter entitled ‘The Importance of Documentation’.

Step 7: Stakeholder Agreement

Once the final requirements document is completed then the key stakeholders indicate their agreement and the document is authorised and issued. Agreement by a signature on the physical document is best, if not agreement by email provided the document is clearly and accurately referenced is acceptable and the emails are filed for easy retrieval.

Demonstrating agreement to the document may be essential later on if disputes arise.

The requirements document may now be used.

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Table of Figures

Figure 1 The Project Triangle 11
Figure 2 The Project Canvas 12
Figure 3 An Outsourced Project Canvas 16
Figure 4 An In House Project Canvas 17
Figure 5 An Event Project Canvas 19
Figure 6 A High Level View of a Project Sequence 20
Figure 7 An Overview of a Project Flow 23
Figure 8 A Simple Bar Chart Network Plan (Gantt Chart) 27
Figure 9 Team Characteristics 45
Figure 10 Exemplary Leadership Characteristics 50
Figure 11 The Elements of Responsible Communications 55
Figure 12 Learning Style Approaches 62
Figure 13 The Creative Flow 68
Figure 14 Unclear Project Scope 80
Figure 15 Devising the Customer Requirements 80
Figure 16 Customer Acceptance Process 84
Figure 17 Risk Mitigation Strategies 94
Figure 18 Issue Response Strategies 96
Figure 19 Comparison of the Risk and Issue Register Content 97
Figure 20 Example Work Breakdown Structure 102
Figure 21 Task Information Template 105
Figure 22 Example Gantt Chart 106
Figure 23 Resource Loading Chart 108
Figure 24 Project Cost Bar 118
Figure 25 Document Register Entry 122
Figure 28 Example Compliance Matrix 125
Figure 29 Example Compliance Assessment 128
Figure 30 Monitoring with the Project Triangle 129
Figure 31 Cost Tracking v Budget – Delayed Resource Ramp Up 134
Figure 32 Cost Tracking v Budget – Critical Delay 135
Figure 33 Cost Tracking v Budget – Overspending Project 136
Figure 34 The Foundations of Change Management 138
Figure 35 Sources of Change 139

Figure 36 Change Control Process in Overview 144
Figure 37 The Change Note 146
Figure 38 The Project In View 147
Figure 39 Project Correction Strategies 148
Figure 26 Seven Steps in Preparing Requirements 158
Figure 27 The Power/Interest Matrix 161

Index

acceptance....22, 83, 84, 85, 88, 89, 99, 154, 155
Acceptance 83, 84, 85, 87, 88, 120, 155
acceptance checks.....89
Accepted Leadership 47
achievement 53
Acts 37
Adding resources 108
agenda 8, 15, 78
Ai36, 37
aligning a team 52
Alignment 46
anxiety 35, 40
aspiration.....112
assumption 81, 165
assumptions.....61, 81, 82, 91
Assumptions 165
benefit.....10, 64, 74, 75, 118, 129, 136
Bezalel & Oholiab.....38
Bible 9, 36, 39
Biblical.....8
biblical principles 54
Brainstorm 76
brainstorming 74, 75, 76, 77
budget.....15, 19, 79, 93, 97, 116, 126, 128, 131, 132, 134, 136, 137, 142, 146, 156
Budgets 29
business case 18, 118
Causes of Change.....138
Challenging the Process.....52
change.....38, 42, 57, 70, 86, 101, 120, 122, 128, 131, 136, 137, 138, 139, 140, 141, 142, 143, 144, 146, 155, 156
Change.....31, 121, 136, 138, 140, 141, 142, 143, 144, 145, 156
Change History 121
change management.....131, 136, 137
Change Note 145
Changes 123
Christ-centred.....43, 44, 45, 50, 52, 53, 55, 64, 151
Christ-Centred Servant Leader 43
Christian principle.....53
Christian values 54
Clear Roles 46
collaboration 52
Collective Wisdom 74
commitment 52, 53
communications .49, 55, 56, 58, 61, 65, 108
Compliance Matrix 98, 124, 125
concept 158
Conflicts and Feasibility.....170
contingencies....28, 30, 89, 93, 97, 132, 144
Contingency 97
contract 16, 88, 140
contractual payments.....85
Controlled Change Process.....143
cost ... 11, 16, 21, 22, 24, 26, 29, 30, 31, 35, 79, 82, 86, 90, 97, 99, 116, 117, 124, 126, 128, 129, 130, 132, 136, 137, 139, 142, 144, 146, 147, 156

costs 6, 14, 18, 19, 67, 70, 71, 72, 89, 93, 108, 116, 117, 118, 128, 132, 140, 144, 145
creative ...43, 68, 73, 74, 75, 76, 77, 91, 92, 140
creativity 35, 68, 73, 75, 77
Creativity.....66, 67
Culture Craft 44
cumulative budget.....31, 132
Customer Acceptance.....13, 83, 86, 88, 120, 154
Customer Requirements.12, 13, 16, 17, 18, 19, 79, 80, 82, 83, 85, 86, 101, 152
customers 53
Day In the Life Of 162
Delayed Ramp Up 133
DILO 162
disruptive behaviours 45
distribution list.....122
Document 100, 120, 122, 123
documentation ..87, 120, 139, 151, 152
Documentation Control.....122
Edward de Bono 68
Effective Team Processes 48
empower.....53
enabling 52
end customer.....13
End Users 159
engagement.....52
Estimate to completion 130
estimates 97, 108, 130, 133, 156
estimation.....108, 133, 136
event 18, 19, 37, 97, 133
Exceptions.....165
Exodus.....38
expectation 112
facilitator.....52
feedback 18, 56, 60, 61, 64
Formal Review 171
full potential .36, 43, 45, 49, 54, 55, 64, 65, 66, 68, 75, 151
Gantt.20, 105, 106, 107, 109, 120, 130, 131, 155
Gantt Chart 27
GanttChart 109
goals.....6, 21, 35, 43, 46, 47
God's plan 36
God's Plans 8, 34, 36
Growing the Servant Heart.....44
high performance team.....45, 49
higher purpose 43, 55, 66
in-house 16, 17
in-house project 16
integrity 48, 51
intermediate impossibility.....73
Intermediate Users.....159
issue 39, 47, 62, 63, 70, 74, 86, 94, 121, 122, 123, 130, 132, 133, 142
issue number 121
Issues 91, 155
IT systems 88
James 39
Jericho.....36, 37
job numbers.....129
Joshua 8, 36, 37
Key Partner **13**
Key Partners 13, 14, 15, 16, 17, 115
Key Resources.....13, 14, 17, 114
Kingdom.....8, 9, 33, 42, 43, 52, 53, 65
Kingdom purpose 33, 43
known unknowns 90
Kouzes and Posner 51
leader.....50
Learning Style 61
listener.....56, 57, 58, 59, 60, 61, 64
management 50
managing the budget 132
Manpower smoothing.....107
master document 123
method 8
methods.....34, 36, 37, 38, 39, 78, 97
Michael Michalko 68
micro-managing.....102
milestone 19, 29, 31, 106, 144

milestones.....15, 29, 31, 32, 106
Milestones 28, 29, 106
mind mapping.....99
mitigation 27, 28, 31, 66, 91, 93, 94, 96, 97, 114, 155
Mitigation 92, 94
modelling the way 51
monitor 30, 96, 102, 128, 129, 132
monitoring 129, 130, 142, 146
Moses.....38
New Ideas 71
Object Forcing.....72
Optimising.....107
Osterwalder 8
out of scope 84
outsourced 14, 15, 17, 18, 85, 115, 124, 140, 153
Overloaded Resources.....106
overrun 79, 136, 139, 140, 147
overruns.....16, 130, 131, 137, 139, 140
overspend 134, 136, 140, 147
ownership 52
partners 15, 115
pattern matching 66, 67, 68
Paul 37, 40
Pauls' second missionary journey 37
peer review.....82
penalties 117
people 9
phase.....18, 84, 106, 117
Philippians.....40
Pigneur.....8
planning 6, 9, 15, 18, 78, 90, 91, 97, 101, 105, 109, 114, 117, 120, 128, 136, 144
potential solutions.....69, 74
Power/Interest Matrix.....160
Prayer.....39
Problem 68, 86, 87, 138
problem definition.....68, 154
Problem Solving 66
procedural thinking 67, 69
process.....52
process orientated 34
progress 12, 15, 106, 128, 129, 130, 137, 155
project calendar.....103, 109
Project Canvas 8, 12, 15, 19, 78
Project Cost 15
Project Costs.....13, 14, 16, 116
project management ..6, 10, 34, 38, 39, 78, 103, 107, 108, 109, 134, 146
project plan...9, 45, 91, 93, 94, 99, 105, 114, 115, 125
Project Plan.....13, 15, 18, 19, 101, 155
project plans 38, 86, 89, 94, 97, 142, 144
project progress.....105, 128
Project Revenues.....14, 19, 118
Project Solution ..13, 14, 15, 16, 18, 19, 98
Project Sponsor 159
project team ...9, 33, 35, 38, 43, 45, 63, 65, 67, 68, 79, 85, 87, 91, 94, 96, 97, 98, 99, 102, 117, 120, 128, 129, 138, 139, 142, 144, 152
project triangle 124, 137
project triangle. 11, 12
prototyping.....18
Random Word 71
register of documents 122
relationships 19, 48, 88
Repeatability.....84
reports 129, 130, 131, 136
Requirement Confirmation 171
Requirement Priorities 169
Requirement Workshops 164
requirements 12, 21, 22, 31, 38, 63, 66, 81, 82, 83, 84, 85, 86, 89, 90, 98, 99, 100, 107, 120, 125, 126, 127, 129, 136, 140, 142, 144, 152
Requirements 157
Requirements capture.....162
Requirements Categorisation.....167
Requirements Document 169
Resource overloading.....106, 107

resources 6, 14, 89, 103, 104, 106, 107, 108, 114, 116, 133
Resources.....26, 114
respect 51
responsible listening.....56
Responsible Listening 64
responsible speaking 56
Review.....97, 100, 123
risk...18, 19, 71, 90, 91, 94, 96, 97, 108, 114, 132, 137, 142, 155
risk management.....27, 91
Risk Register.....96, 120
risks ...13, 15, 16, 66, 91, 92, 93, 94, 96, 97, 155
Risks 13, 15, 27, 90, 91, 97, 125
root problem.....69
scheduling.....26, 109
scope.11, 12, 17, 21, 60, 69, 79, 81, 82, 86, 99, 116, 124, 128, 130, 131, 137, 139, 144, 146, 147, 154, 155
scoring.....91
script 83, 84, 85, 88
secular leadership philosophy.....43
sequence.....19, 38, 85, 94
Servant King.....42, 43, 44
servant leader.....43, 44, 45, 49, 55, 64, 151
servant leadership development programme.....44
Sessoms 51
severity 86, 87, 88
SMART Tasks.....104
software...103, 107, 108, 109, 114, 140
solution ...13, 16, 18, 22, 24, 31, 66, 67, 68, 71, 72, 73, 74, 75, 76, 82, 83, 90, 98, 99, 100, 101, 109, 118, 124, 125, 126, 128, 138, 144, 146
Solution Compliance.....124
stakeholder **13**
Stakeholder Agreement.....172
Stakeholder Interviews.....163
stakeholders .13, 15, 22, 24, 31, 33, 53, 82, 95, 104, 126, 127, 128, 142, 144, 145, 146
Stakeholders 126, 159
stress.....6, 35, 40
stressful environment 35
subcontract.....24
suppliers 115, 127, 140
Tabernacle 38
task ...22, 24, 25, 26, 27, 28, 29, 30, 31, 43, 47, 90, 102, 103, 104, 105, 106, 108, 109, 116, 126, 129, 130, 131, 133, 136, 138, 139
tasks..18, 20, 24, 25, 26, 27, 29, 30, 46, 97, 102, 103, 105, 106, 107, 108, 109, 114, 130, 131, 133, 134, 136, 139, 153
team.....50
team members 53
Team processes 48
technical projects 18, 88
test.....61, 62, 83, 84, 85, 88, 154
time...11, 13, 18, 19, 21, 22, 24, 26, 27, 29, 30, 31, 32, 35, 37, 43, 47, 49, 56, 57, 64, 66, 68, 69, 74, 76, 79, 86, 87, 89, 90, 93, 97, 99, 102, 104, 105, 106, 107, 108, 109, 116, 124, 126, 128, 129, 130, 131, 132, 133, 134, 137, 139, 140, 141, 142, 144, 145,146, 147, 150
Time Recording.....129
timescale.....128, 144
top down 99
Traceability 82
triangle....11, 12, 79, 99, 116, 128, 137, 142, 144, 146
trust 48, 51
Uncontrolled change 31, 122, 136
underspend.....133
unknown unknowns 90, 97
Users 159
values.....51, 54
vision.....51, 158

volunteer 46, 52, 53, 111, 113
Volunteer 110
volunteers 53
Walk the Talk 51
What is a project.....10
Wiio.....59
wisdom 35, 39, 41, 66
Work Breakdown Structure....101, 102, 153
work packages 99, 102