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Information Services Project Management Handbook

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1. Definitions

This Handbook is not intended to be a manual of project management theory, but to provide guidance on how to apply project management techniques in ISD, where appropriate. The suggested methods, tools, techniques and helpful hints are not hard and fast rules and tools that you should use on every project. Each project is unique in nature and appropriate methods, tools and techniques should be chosen and applied given the project's individual situation.

Project management can be defined as:

> *"…the process by which projects are defined, planned, monitored, controlled and delivered such that the agreed benefits are realised. Projects are unique, transient endeavours undertaken to achieve a desired outcome. Projects bring about change and project management is recognised as the most efficient way of managing such change." (APM Body of Knowledge, 5th edition).*

In ISD terms, other than "business as usual", many pieces of work fall within this definition. It is not the intention to subject every such piece of work to formal project management; the trick is to identify where it is appropriate and helpful.

1.1 What is a project?

Making a decision on what is a project and what can be considered as change within the remit of business as usual is not a precise science. By way of guidance, projects and business as usual have the following characteristics:

Figure 1: *Characteristics of a Project vs. Business as Usual*

Project	Business as Usual
The work is unique to the business, within some or all of these constraints: • Time • Cost • Quality • Resources • Scope • Benefits	The work is repetitive in nature and something the business has already done / does on a regular basis.
Work is finite or has a temporary lifespan	Work is on-going or has a permanent lifespan
Work is revolutionary, creating something new	Work is evolutionary: consistent small change
Work must be effective (doing the right job)	Work must be efficient (doing the job well)
Work carries risk and uncertainty	Work carries the benefit of experience; it has been done before within the business

The decision should be taken, on a case by case basis, by the relevant ISD Director or Assistant Director. This will often be when the piece of work appears in a team plan; other points where work will emerge include the ISSC, ISDMT, CUBS bidding process, the Capital Planning and Accommodation Committee, the ISD Education and Research Boards, and the Student Administrative Systems Development Board.

Factors to be taken into account include:

- The level of risk involved in the project
- The impact of the project
- The audience affected by the project
- Whether more than one team is involved, and whether work is required from teams outside ISD
- The level of oversight of the project that is required
- The amount of financial resources involved, and the flexibility available for spending them.

If it is considered that a piece of work is indeed a project, see Section 2 for details on how to start.

1.2 Standard Terminology used in the Handbook

For the avoidance of confusion and misinterpretation, it is important that all the projects in ISD use consistent terminology. Certain words and phrases have specific meanings in the Project Management context, and some have subtly different meanings in different Project Management methodologies. There is also a Glossary at Appendix B.

- A **PROGRAMME** of work is a group of related **PROJECTS**, which may also include related business-as-usual activities. The annual ISD Programme of Work consists of projects, service plans and team plans.

- **PROJECTS** are often carried out in a number of distinct **WORK STAGES**. Stages are sometimes called "Phases" in project management methodologies. Note that these are not necessarily consecutive; they can be carried out in parallel. Each project will have a Project Plan, including a Schedule.

- Each **WORK STAGE** will comprise a number of **ACTIVITIES.** An activity can be described as a summation of **TASKS**. Work stages will usually have associated Stage Plans, containing more detailed task schedules than are shown in the project schedules.

- Each **ACTIVITY** will comprise a number of **TASKS**, which are the smallest indivisible part of an activity when it is broken down to a level best understood and performed by a specific person or organisation. It is the **TASK** that has resources and timescales allocated to it, and is subsequently carried out. All other levels in the work breakdown structure are for reporting and control purposes.

Schedules are included in Project Plans. They provide a view of the tasks against a calendar, and it is also possible to show dependencies between the tasks. Issued as an appendix to the plan, they can be a
mended and re-issued without the need to have their "parent" documents amended too, depending on the level of change involved.

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Issues are events that have already occurred and are impeding further progress or the eventual achievement of project objectives, so that they need escalating and resolving. *Potential* problems that can be foreseen are highlighted as **risks**.

Constraints are highlighted in plans as restrictions or limitations on the scope of the project. They may include, for example, the maximum budget available, or a fixed date by which the project must be completed.

Objectives describe the tangible results of having completed the project, whilst **Deliverables** describe the elements that go to make up the objectives. Thus, an objective might be to complete a Business Process Review of Purchasing, with deliverables being: a report on the current position; an option appraisal of possible ways forward; policies and procedures for purchases in the future, etc. Objectives are things you *will* achieve, and should be Specific, Measurable, Achievable, Realistic, and Timely (SMART).

Quality Assurance is the means by which the deliverables of the project are checked before final completion. This will often include having someone external to the project look at the work.

Interfaces are the points where a project has a relationship with another piece of work taking place, or one that is likely to be affected by the project.

Critical path are activities within the project schedule which are dependent the completion of the previous task and where if a delay to one task occurs the project completion date will be delayed.

Project Support provides project managers with mentoring support, guidance in use of tools, expertise in areas such as quality assurance, finance and risk analysis.

Project Board provides management representation from areas of the business, the main client of the project and any suppliers. The role of the board is to own the project, provide direction and advice.

Project Team is comprised of individuals who are defined as responsible to create products or complete tasks within the time and cost constraints defined by the project manager. They report to the project manager.

Project Manager is the individual who plans, co-ordinates, monitors, reports on and provides direction for the project. They act as an agent for the project board to ensure the project delivers the desired benefits at the right time and cost.

1.3 Project Roles and Responsibilities

Each project will have management arrangements following a standard pattern, although there may be some variation of detail from project to project. These roles and responsibilities will be laid out in the Project Plan so that all concerned are clear about their level of involvement.

Each project has a:

- **Project Sponsor** who is responsible for promoting the project and acting as its "champion" in the senior ranks of the University. The project sponsor is the

primary risk taker who is accountable to the University. Project sponsorship is an active senior management role, responsible for identifying the business need, problem or opportunity. The sponsor owns the business case, ensures the project remains a viable proposition providing value for money, ensures benefits are identified and realised, and resolves any issues outside the control of the project manager. The project sponsor will provide the project manager with advice, direction and delegate a level of authority with a definition of types of issues and actions that should be passed back to the sponsor and those which the project manager is able to deal with directly. The project Sponsor is the chair of the project board.

- **Project Board**, which owns and oversees the project. It should consist of representative stakeholders including the senior users or customer to receive benefits from the project, the senior supplier (i.e. software supplier), the project Sponsor and the project manager. The Project Board will provide high-level monitoring of the progress of the project and will therefore meet regularly for the duration of the project. The Project Board is responsible for:

  - **Monitoring Progress** – the project board will receive a regular highlight report which describes progress, emerging issues, risks and a summary of the budget position. Issues that the project manager is unable to overcome, and does not have the authority to handle, will be escalated to the board for their consideration and approval of recommendations.

  - **Mandating Changes** – providing a very clear and concise message to the University community when needed about the changes that are required by ISD in support of the project.

  - **Quality Control** – provides authority for "sign off" of deliverables. Issues are escalated to the Board for them to try to resolve. If the Board is unable to resolve a problem, it may be referred to ISSC and the Executive Team as the ultimate authority.

- **Project Manager** who has the authority, accountability and responsibility for managing the project to achieve defined objectives as set out in the project plan. The Project Manager acts as an agent of the Project Board, seeks approval for Plans from the Board, reports progress to the Board, and brings to the Board key points of principle or policy for consideration, or Issues for resolution. The project manager produces the Project Plan which can be thought of as a contract between the Board and the Project Manager. The plan defines the scope, objectives, benefits, quality levels, timescales and costs for the project. The project manager is responsible for ensuring the project plan is fulfilled. The project manager is responsible for:

  - information gathering;

  - consultation;

  - production of documentation;

  - monitoring progress against the Plan and updating it;

  - publicising and promoting the project to the UEA community.

In conjunction with the Project Team(s), the Manager produces Stage Plans, each having their own schedules. The Project Manager has the responsibility of ensuring that project and stage plans, schedules and all other "official" project documents are filed correctly according to the standard file structure set out in section 2.2.

- **Project Team**. The project team members will take responsibility for specific strands of work or individual tasks within timescales, quality and costs as defined by the project manager. They will report progress to the project manager. The project manager will oversee the process, looking for elements of risk and ensuring resources are managed and timescales met. The role of team members is to:

  - **Complete Deliverables:** Ensure production of deliverables defined by the Project Manager to an appropriate quality, in a timescale and at a cost acceptable to the Project Board.

  - **Tasks:** Report to, and take direction from, the Project Manager to complete defined tasks ensuring the project manager is kept up to date if any issues occur that may cause delays to the delivery of tasks or if risks have been identified that affect the project.

  - **Seek Authorisation:** if other work outside of the project has been allocated to team members which may affect delivery dates of the project tasks then authorisation is needed from the project manager to divert agreed resources. The project manager should be consulted if project team members have requested leave to ensure that this does not affect the end delivery date of the project tasks.

- **Consultative Groups**, whose role is to put forward ideas and give advice to the Project Manager. They will be used to check out ideas, discuss principles, test workability and acceptability of ideas, and to act as champions for the project.

- **Users:** The group of people who are intended to benefit from the project. They assist in the specifying of the requirements, test the requirements are being met as products are produced, involved in the acceptance of the service/product and use the service/product when it is operational. Senior Users usually represent this group on the project board.

As can be seen from the above, projects have complex relationships with many other parts of the University: by their nature, IT projects in particular are unlikely to be self-contained within ISD. The Project Plan forms an essential link between the Board and the Project Manager whose task it is to ensure the plan meets its objectives. The Project Sponsor provides an equally important link with ISSC as ISD's controlling committee, and the Executive Team, who have ultimate authority.
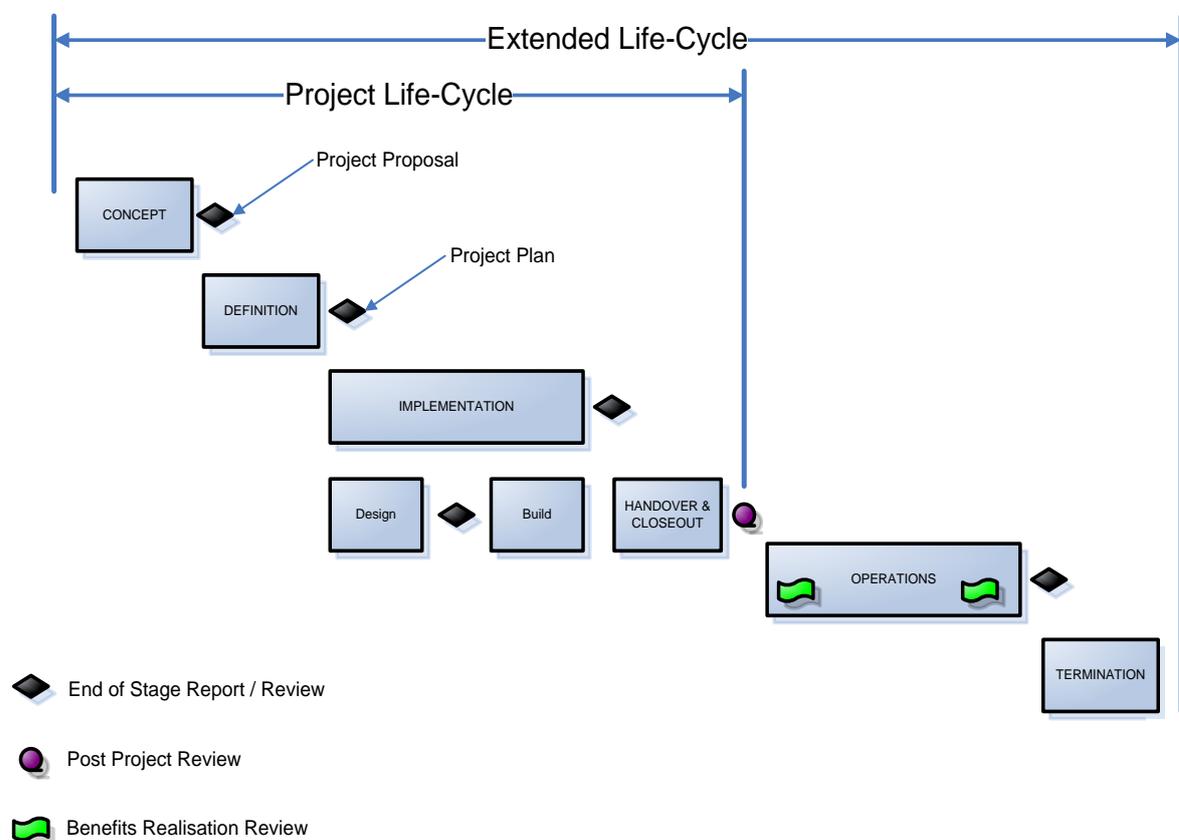
1.4 The Project Lifecycle

Projects follow a defined life-cycle from concept to closure, and there is help available for the management of each of these stages. There are a number of stages common to each project; these can be referred to collectively as the "project life-

cycle". Some projects have additional stages which are then classed as the "extended life-cycle". The key benefits to following such a lifecycle are:

- Ensures next phase of work is understood
- Better estimating as your planning horizon is shortened into small stages. You have a more realistic understanding at each stage of the time needed to complete tasks.
- Phased approach allows success to be celebrated and reinforces stakeholder commitment.
- Ensures important information is captured through the project such as Lessons Learned that can be applied to future projects.
- By setting "go / no-go" decision points within your project schedule you are able to assess levels of success, effectiveness, value for money and benefits realisation for each key stage.

Figure 2: *The Project Lifecycle*

The lifecycle is made of stages that sequentially follow-on from one another as seen in Figure 2. Throughout the lifecycle, highlight reports are used to update key stakeholders on progress of the project. Other documents such as the project proposal, stage reviews and project plans are also used at key points in the project. The key stages are defined below.

Concept: The organisational strategy may trigger the need for a new project. The concept phase is to understand this change or strategy and the problem / opportunity. This phase will investigate the feasibility of resolving the problem or taking advantage of the opportunity. Stakeholders will start to be identified and an analysis undertaken to understand them and the power or influence they may have

on the project. A preferred solution will be agreed with a possible option appraisal undertaken. A project proposal will then be constructed summarising the business case and findings where approval should be sought from the governing body before proceeding to the next stage. If funding is required then this should be sourced and approved in principle. Approval is normally either sought from ISSC or from ISDMT.

The initial stage is to define the concept for a proposed piece of work, setting out what you want to do. Anyone is able to do this, passing it to their manager for consideration. There is a key decision point at this stage; if we want to do this piece of work, does it count as Business as Usual (BAU), or a project?

Key Documents & Tools: Project Proposal (including Business Case), outline cost analysis, end of stage review

Definition: Within this phase the requirements of the project are defined and a project plan produced. Approval of the plan should be sought and funds should be obtained if appropriate.

Key Documents & Tools: project plan (including a communications plan, outline project schedule, risk analysis, stakeholder analysis), end of stage review

Implementation: As each stage is started, a design and build phase is experienced. At the start of each stage, more details of the requirements and tasks involved should be investigated and planned for to provide a more accurate timescale for completing the stage. A review should be undertaken after each stage to ensure all requirements have been met and to gain approval to move to the next stage. Typical areas covered in a stage include procurement, installation, software development, and component testing.

Key Documents & Tools: Detailed stage plans, end of stage review

Handover & Closeout: Once the core implementation stage has been completed a full testing cycle is undertaken in the Handover and closeout stage. This will usually involve handing over the product/service to the customer and seeking their approval for the finished product / service. The handover phase could include moving the product/service from project and into operational service. This will involve arranging support mechanisms and passing the product / service to the business as usual team with appropriate documentation and training. When this has happened, the resource secured for the project can be released, project documentation can be archived and appropriate contracts passed to the business as usual team supporting the product/service.

Key Documents & Tools: Post project review, lessons learned, monitoring reports for benefits realisation, training material, system / service documentation, DR/BC plans.

Operations: This is where the project team perform the operational duties that would normally be reserved for the business as usual team, and support the product / service after it has been delivered to the customer. This may allow for continuation of service, monitoring for effectiveness and allowing for adjustment to the product service to meet changing needs. This usually occurs when the product / service is highly innovative and the University has little or no experience and may encounter resistance which will prevent the benefits being realised. The operations phase allows the project team to support and maintain the product / service, provide marketing as well as the general maintenance.

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Key Documents & Tools: Marketing material, end of stage review, benefits realisation monitoring reports.

**Termination:** The main purpose of this stage is to shut down the operation when the benefits of the project are no longer being realised. Tasks may include disposing of the old product / service e.g. removing previous student information system after a new one has been implemented. A final review should be undertaken and a lessons learned document created.

Key Documents & Tools: post project review, lessons learned.

2. Process for starting and managing a project

The process described in this section is guidance on how projects are started and then managed on an on-going basis. These are not hard and fast rules as every project is unique but should be considered when managing your own project.

2.1 Concept Stage
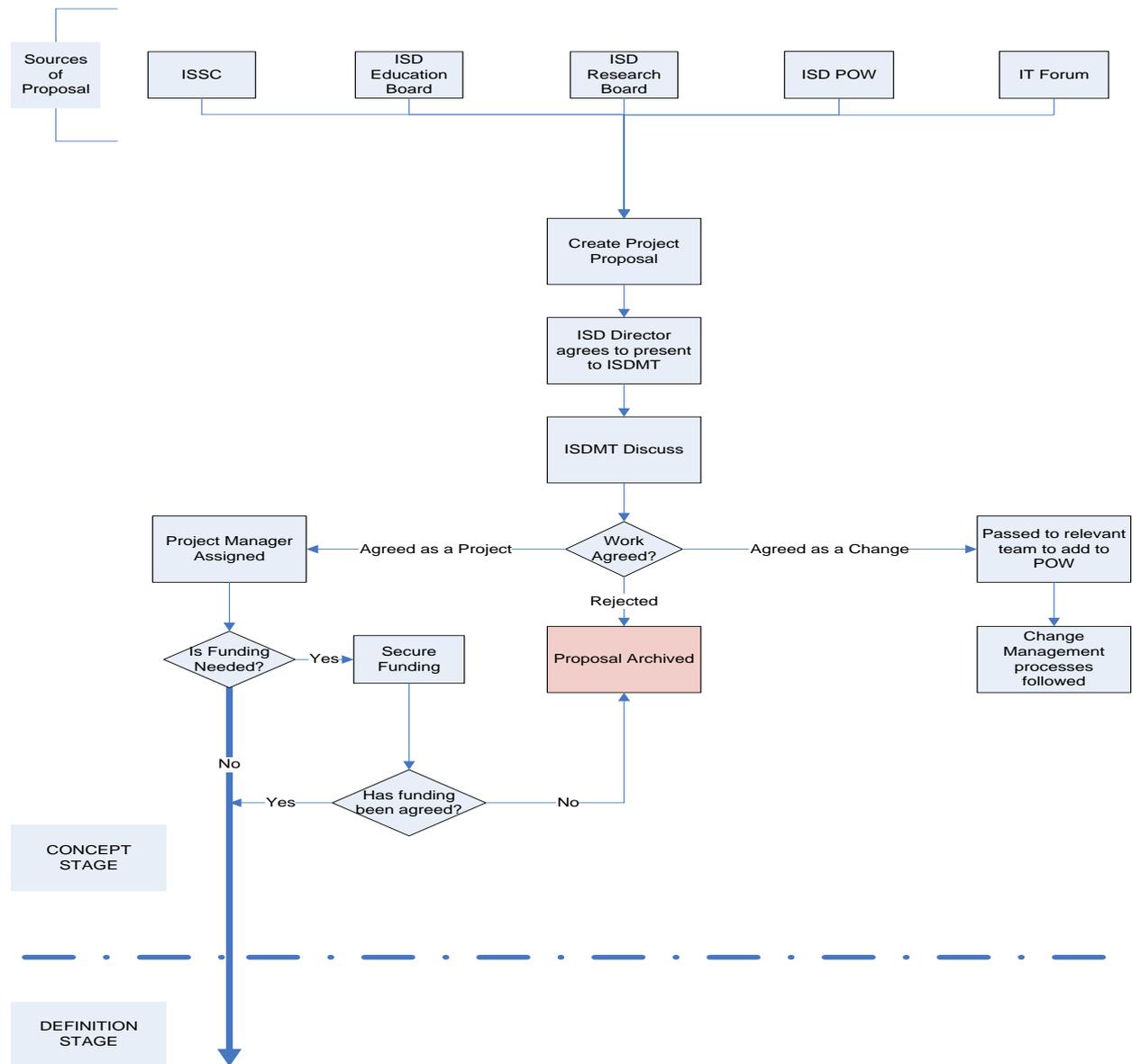
The initial stage is to define the concept for a proposed piece of work, setting out what you want to do. Anyone is able to develop a proposal, passing it to their manager for consideration. The manager decides whether the piece of work should be escalated to the relevant Director or Assistant Director for presentation as a project proposal.

- Project proposals are presented by ISD Directors and Assistant Directors for consideration by ISDMT as a result of deciding that a piece of work which has arisen from team planning or from a committee or board should be considered for management using the project management methodology.

- Where a proposed project requires a bid to CUBS for funding, the project proposal will need to have been approved by ISDMT in time for submission to ISSC in November of the year preceding the CUBS decision making process. ISSC should endorse all CUBS bids being made by ISD.

The project proposal form is a short, simple document, requiring the following information:

- *Project Title:* name of the proposed project
- *Rationale:* why the work is required
- *Proposed Project Board:* names of people who will be on the project board.
- *Proposed Project Team:* names of people who will be included within the project team.
- *Key Stakeholders:* people affected by the work with brief on the level of interest / power they may have on the project.
- *Target Completion Date:* this may not be know at this stage, but if there are limitations or drivers for completing the work there may be a pre-defined date by which the project must be completed by.
- *Business Case:* identification of costs, benefits and opportunity costs if the work is not done.
- *Other resources required:* identification of teams needing to be involved in the project (consider those needed in other departments).
- *Outline Schedule:* identify key milestones and high level deliverables / tasks that may need to be completed with any constraining dates.
- *Spending Profile:* provide an outline of when costs are expected to be incurred (if necessary).

> The project proposal template which contains guidance on how to complete it and any relevant tools you can use can be found in Appendix C (document 1). Occasionally a more detailed business case is required to secure funding and justification of a project. A template with guidance has been provided in appendix C (document 2).

When the project proposal is considered by ISDMT, a decision is taken by them on whether the work should take place or not. In some cases, this will be dependent on approval or endorsement from ISSC, ET, the ISD Education or Research boards, or from CUBS. At this stage, the holder of the key posts of project sponsor and project manager should be identified.

Report sections that do not appear to be relevant to the project should **not** be deleted, but simply marked as n/a, giving ISDMT the opportunity to challenge whether something should actually be included or not.

A decision can be made as follows by ISDMT:

- *Rejection:* the work proposed may not bring benefits suitable to the direction the University is moving in or the work does not offer value for money to the University and it is deemed that this work should not go ahead.
- *Accepted as a Change:* It's accepted that the work should go ahead and is beneficial to the University. A decision is made that the work should be performed using change management rather than as a project due to the nature and characteristics of the work. This will be passed back to the relevant team for them to action. Further information on

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change management can be found at \\Central-vfs\central-div-share1\ISD\Service-Catalogue\Documents\Templates\Change-Management.

- *Accepted as a Project:* It's accepted that the work should go ahead but due to the nature and characteristics of the work a project management methodology should be adopted. ISDMT will appoint a project manager.

If the work has been agreed in principle as a project and funding is required then this funding will need to be sought and approved before the project can continue. It may be that funds can be obtained from existing budgets or it may require agreement for CUBS funding. If funding is approved then the project can move into the next stage (definition). If funding is not approved then the project proposal will be archived.

2.2 Definition Stage
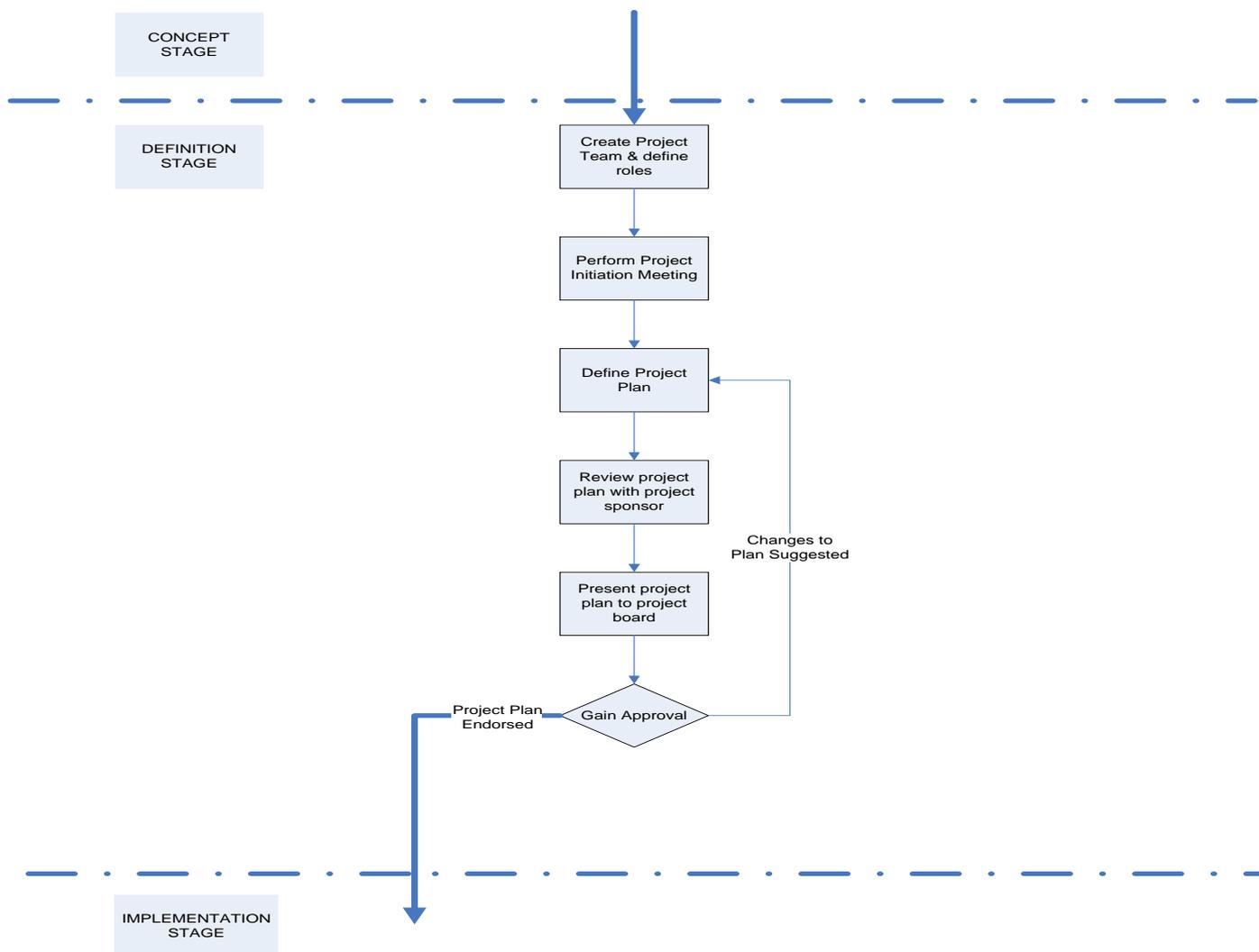
If the project proposal has been *"Accepted as a Project",* then a project manager will have been appointed by ISDMT and a full project plan will need to be created by the project manager. The project plan document should expand on the project proposal by setting out clearly the requirements of the project. The project plan should not be created in isolation by the project manager. The project team will have been identified in the project proposal and should be formed together as a group and consulted when constructing the plan. Gathering

the project team together in the initiation meeting will allow people from different areas of the University to input their thoughts and expertise into the project plan.

> ***Project file structure:*** To aid project managers a standard file structure has been defined for use with projects, aiming to ensure that all project documentation is held centrally in a consistent manner. **It is the responsibility of project managers to ensure that their documentation is filed within this structure, so that it can be easily retrieved by any authorised interested party.**
>
> - **Action List:** Contains your actions/issues/risk logs
> - **Budget:** Contains information relating to the project budget including the main budget spreadsheet
> - **Communications:** if appropriate this will contain a more detailed communications plan and / or a contacts list
> - **Deliverables:** this may contain documents and information relating to each individual deliverable defined in your project plan
> - **Meeting Notes:** can be used to store highlight reports, project board papers (agenda, minutes etc.).
> - **Project Plan:** will contain the main project plan and each relevant version
> - **Project proposal:** will contain the project proposal and each relevant version
> - **Schedule:** will contain the project schedule (excel, MS project etc.)
>
> Arising from the approval of a piece of work as a project, the project manager will set up the file structure in the Divisional file share: \\central-vfs\central-div-share1\ISD\Projects\. The template file structure and documentation should be copied into a new folder for the new project, and can be found in the templates section called "File-Structure". Project managers are at liberty to create further folders, but this minimum structure should be retained.
>
> In addition to using the filestore project managers may want to publish project documents to the ISD website to allow for sharing of information. An area has been created for this purpose in the ISD Programme of Work area (http://www.uea.ac.uk/is/isdpow).

Initiation Meeting: The project can be scoped in the first project team meeting, or sometimes in a special initiation meeting involving the key stakeholders. The project manager will have a key role to play to lead the initiation meeting, write the resulting project plan and then present the plan to the Project Board for their formal approval.

The project manager, as the person leading the initiation meeting, should ensure that the meeting retains focus on the requirements of the project, bearing in mind that the outcome will be the key information required for the writing of a project plan. It is helpful to go into the meeting with a clear agenda of areas that need to be covered: this may vary from project to project, but is likely to include:

- Objectives
- Assumptions
- Inclusions and deliverables. (These may be loosely defined at this stage; finer definition can wait until the plan is written.)
- Exclusions
- Problems to bear in mind
- Risks

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- Define deliverables / tasks to be completed and estimate timescales for completion.
- Resource requirements for the project team
- How the project will be conducted: frequency of board meetings, use of expert groups, consultation arrangements, etc.

The Project Plan: Following the initiation meeting, and very much informed by it, the first task for the project manager is to develop the project proposal into a fully worked up Project Plan, which must be approved by the Project Board.

The Plan is, in effect, the contract between the Project Manager and the organisation and therefore sets out her/his brief. After agreement, it comprises a record, and therefore should be subject to strict document control disciplines.

The development of the Plan is an important step in carrying out the project, in that it ensures that vital thinking about the objectives of the project is carried out. It is therefore essential that the project manager, key stakeholders and the project team members are closely involved at this crucial stage, so that the full implications of the scope of the project are fully understood, and are fully supported.

The Plan should include:
- ***Introduction:*** *Summary of what is being achieved and why*
- ***Project Details***
  - ***Project Aim and Strategic Fit:*** *What you are trying to achieve and how this meets the goals of the University*
  - ***Business Case:*** *level of investment and the resulting benefits gained*
  - ***Assumptions:*** *define what you think to be the true situation about the project and environment*
  - ***Project Scope:*** *objectives; inclusions; exclusions; deliverables (with acceptance criteria)*
  - ***Key Performance Indicators:*** *how to measure success of the project*
  - ***Project Organisation, Structure and Controls:*** *Who is adopting each of the project roles and their responsibilities?*
  - ***Project Approach:*** *How the project will be structured and managed*
  - ***Project Communications:*** *provide stakeholder analysis and means of handling & communicating with them*
  - ***Training Arrangements:*** *Provide details of any training needs (including stakeholders)*
  - ***Quality Assurance:*** *What level of quality is achievable and how can you measure it? When, where and how quality will be checked. Linked to KPIs and User Expectations*
  - ***Project Closure:*** *Actions to be completed at the end of the project (see checklist for help)*
- ***Appendix A*** *– Project schedule and income / spend profile*
- ***Appendix B*** *– Issue and Risk Log*

> The project plan template and more detailed guidance and tools that can be used to complete the template can be found in appendix C (document 3). It is also useful to look at previous project plans to see how others have completed the project plan. See appendix C (document 4) for examples. A risk log checklist has also been provided (appendix C, document 5) to help project managers think about the types of risks that may occur in different areas of a project. This will assist in completing appendix B of the project plan.

Approval: The project sponsor is accountable for the benefits, effectiveness and value for money being offered by the project. It is therefore essential that the project sponsor agrees and approves the draft project plan. The project plan should then be formally approved and endorsed by the Project Board. This should be achieved at the first project board meeting and should be recorded in the board minutes and at the end of the plan. ***The project manager is responsible for arranging the board meetings and acting as the board's secretary.***

The Project Board should comprise of the Project Sponsor (who acts as Chair), Project Manager (who acts as the secretary), senior users (who are the main beneficiaries from the project) and optionally senior suppliers (such as software supplier).

2.3 Implementation Stage
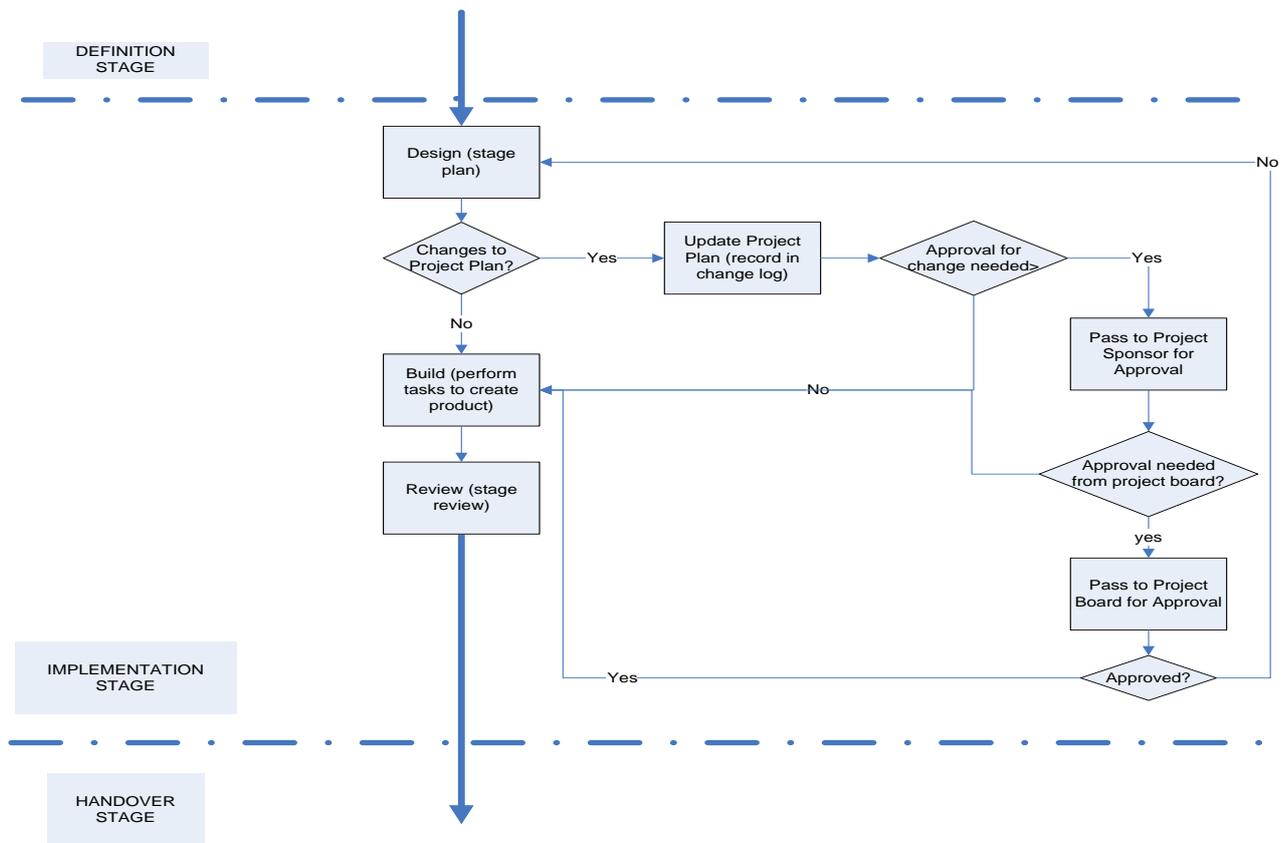
Design: The project manager should with the project team create a breakdown of the work to be undertaken into a schedule for each stage (Network Diagrams: tasks, timescales, dependencies, float / free float and critical path). Gain agreement from all of those involved that they are available to complete the tasks as defined in the project schedule.

Build: Start implementation following the project schedule that has been created. At the end of each stage a review should be undertaken to establish its successes, failures, issues, benefits are still being realised and any lessons learned. This report should be created by the project manager and presented to the project board and project sponsor so as to gain approval for the project to continue to the next stage. At the beginning of the next stage the process of design and build starts all over again (if appropriate).

A template and guidance on stage reviews can be found in appendix C (document 6).

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Changes to Project Plan: Design and build may introduce a change or revision to the project scope or objectives. The Project Manager will have authorisation to make changes that do not impact significantly on the objectives of the project. However, if significant change is encountered this should be reported to the project sponsor and project board to gain guidance and approval of any changes. This is to ensure that the project benefits are still achievable and the project still provides effective value for money.

> Any changes made to the project plan can be recorded in a change log. A template and guidance can be found in appendix C (document 7).

Monitoring and Controlling the Project: throughout the lifecycle of a project it is essential that the project manager is aware of current progress, potential risks and issues and has the tools to be able to control and manage the project. This is especially true for the implementation stage.

- ***Monitor Schedule:*** No matter how much effort went into its creation, a schedule almost immediately becomes history, and so needs regular monitoring and revision. You should review and update the schedule frequently with the project team to establish the current state of play. Where schedules are complicated, it is worth considering using software such as Microsoft Project to run reports to more easily identify tasks which are due for completion, and who is responsible for carrying them out. If more detail is required, then the project manager could use an action list.

> A combined action / issue and risk log template with guidance is available in appendix C (document 8).

- ***Monitor Issues:*** Within the regular team meetings it is essential to understand if there are any issues that are affecting how the project is progressing. "*Issue management is the process by which concerns that threaten the project objectives and cannot be resolved by the project manager are identified and addressed to remove the threats they pose".* All issues should be recorded in the action / issue / risk log. Issues should be evaluated and mitigation put in place to resolve the issue. If you have identified an issue that cannot be resolved advice and guidance should be sought by adding the issue for discussion in the highlight report which is sent to the project board / sponsor / ISDMT.

- ***Monitor Risks:*** Within the regular team meetings, it is essential to understand if there are any risks that could affect the project. "*Project risk management is a structured process that allows risks to be understood and managed proactively, optimising project success by minimising threats and maximising opportunities*". Risks are recorded at the beginning of the project process. These are prioritised and should be mitigated against. Constant monitoring of these risks and any emerging new risks should take place. If you have identified a risk advice and guidance should be sought by adding the risk for discussion in the highlight report which is sent to the project board / sponsor / ISDMT.

- ***Monitor Costs:*** If your project has a budget and a defined set of costs, these should be recorded, monitored and reported on.

> A template budget spreadsheet has been provided in appendix C (document 9).

- ***Monitor Resource:*** One area that can be difficult to manage is the resource needed to complete the project tasks. When the schedule has been constructed and resource allocated it is essential to gain agreement from the appropriate line manager / Head of department that the resource is available to participate in the project. Agreement and

assurance should be made dedicating the resource to the project. Existing annual leave of resources should be incorporated into the schedule; any further requests for leave should be agreed between the line manager and the project manager to ensure that this does not impact on the schedule. There may be times when resource is diverted to other work by their line manager / head of department. This should only happen with the agreement by the project manager to ensure that it does not impact the project delivery date. An assessment of the impact of this on the schedule should be made and negotiation may be needed to ensure your project remains on track.

- ***Communicate Progress:*** In addition to constant monitoring and updating it's important to communicate to others the state of the project. To formalise this, Project Managers are required to complete a highlight report which should be sent to the project board at appropriate stages, to ISDMT once a month and to the project sponsor at an appropriate time as agreed in the project plan. The highlight report follows a simple format that helps the Project Manager to make a regular appraisal of progress against milestones and deliverables, emerging issues and risks that could affect the project and to identify tasks due in the next month.

> A highlight report template with guidance is available in appendix c (document 10).

- ***Stage Reviews:*** One means of controlling a project is with the use of stage reviews. These occur at the end of each stage and are used to determine if the project should proceed or not. The project board and sponsor should assess the review to make this decision. The stage review should include the following:

  - Identify any concerns and corrective actions
  - Establish technical success of stage
  - Validate progress against time, cost, quality, scope and resources
  - Stakeholders relationship and perceptions of the project
  - Lessons learned and actions arising
  - Has the current stage been completed
  - Evaluate plan for next stage

  The stage review should be completed with the project team and presented to the project board and project sponsor for discussion and approval. A template and guidance has been created and can be found in appendix C (document 6).

Governance: To be most effective, projects should only report to one Board, which should be dedicated to that project. Its membership should be limited to only the key roles required; wider input can be achieved by the inclusion of stakeholders and expert users / suppliers as fully contributing members of project teams. The optimum size for a project board is five members.

A major part of the Project Manager's role is the relationship with the Project Board. Meetings need to be arranged in good time, agendas agreed and papers written. All this needs to be done in close co-operation with the Project Sponsor. The meetings should be set at regular intervals and for the duration of the project schedule. It's best to try and get all of the meetings in peoples diaries at the beginning of the project and to add these into the project schedule. When assessing the timings of these meetings, look for key points in the project schedule when you will need advice, guidance or decisions to be made. Remember, setting up project meetings is one of the tasks the ISD Secretariat can help with.

Each board meeting should have an agenda and minutes. Templates for agendas and minutes can be found on the ISD committee office website

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(https://intranet.uea.ac.uk/committeeoffice/templates). The highlight report should always be on the agenda for discussion as with any other project review papers (e.g. stage reviews and post project reviews). The agenda and its papers should be created by the project manager (acting as the board secretary), reviewed by the chair (project sponsor) and sent out to board members at least one week in advance of the meeting. These will usually be in PDF format.

The project manager (acting as the board's secretary) should review the notes of the last meeting in good time, ensuring that all actions have been completed, or chased up. Any outstanding actions from last time should have been flagged in board actions, or else must be included in the next one.

2.4 Handover and Close-out

Project handover is where the project is completed to the satisfaction of the project sponsor and user. The project is ready to be handed over to the operational environment. Specific tasks should be planned for and completed to allow this to happen.
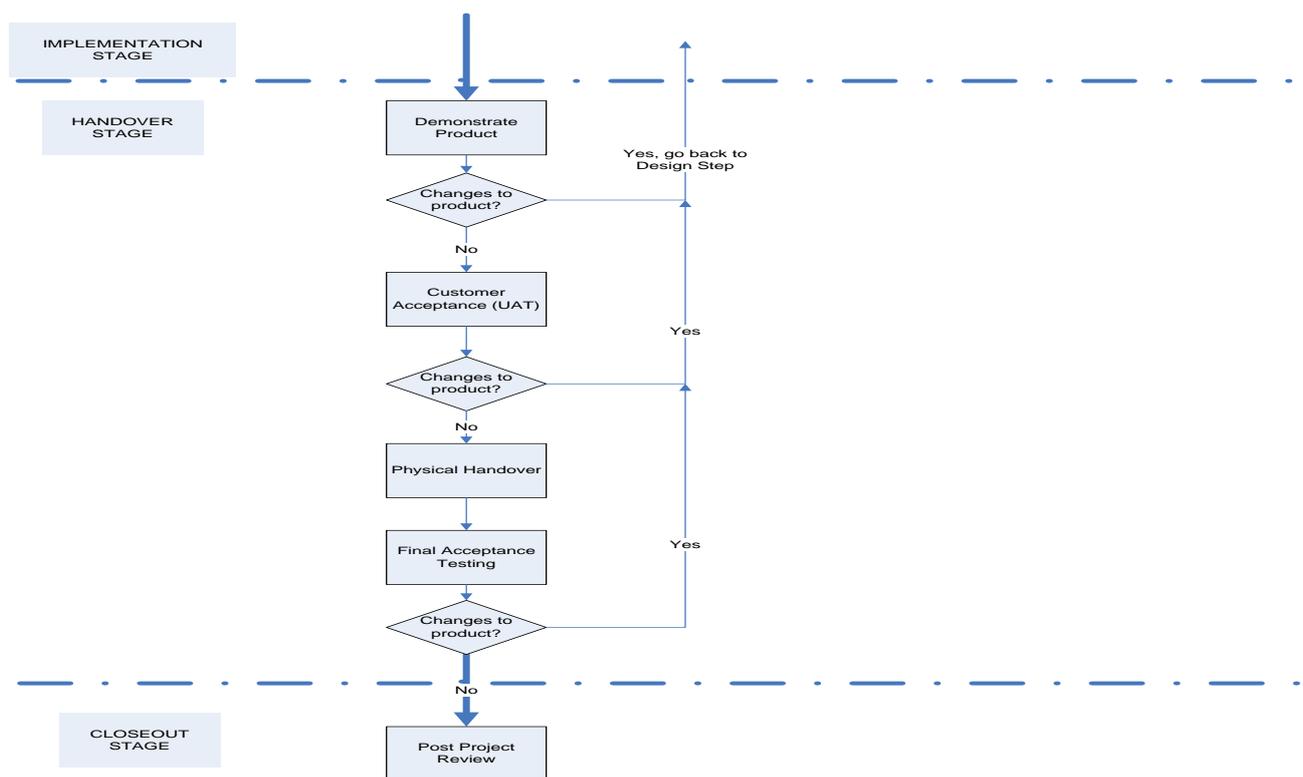
Close-out is the process of finalising all project matters such as post project reviews, archiving project information and redeploying project resource.

```
         HANDOVER              Changes to        Yes
          STAGE                product?
                                   No

         CLOSEOUT
          STAGE               Post Project
                                 Review

                             Finalise Admin
                               Matters

                              Dispose of
                           supplied / facilities

                            Ensure Benefits
                          Realisation Plan in
                                 place

        OPERATIONAL /
     TERMINATION STAGES
         (OPTIONAL)
```
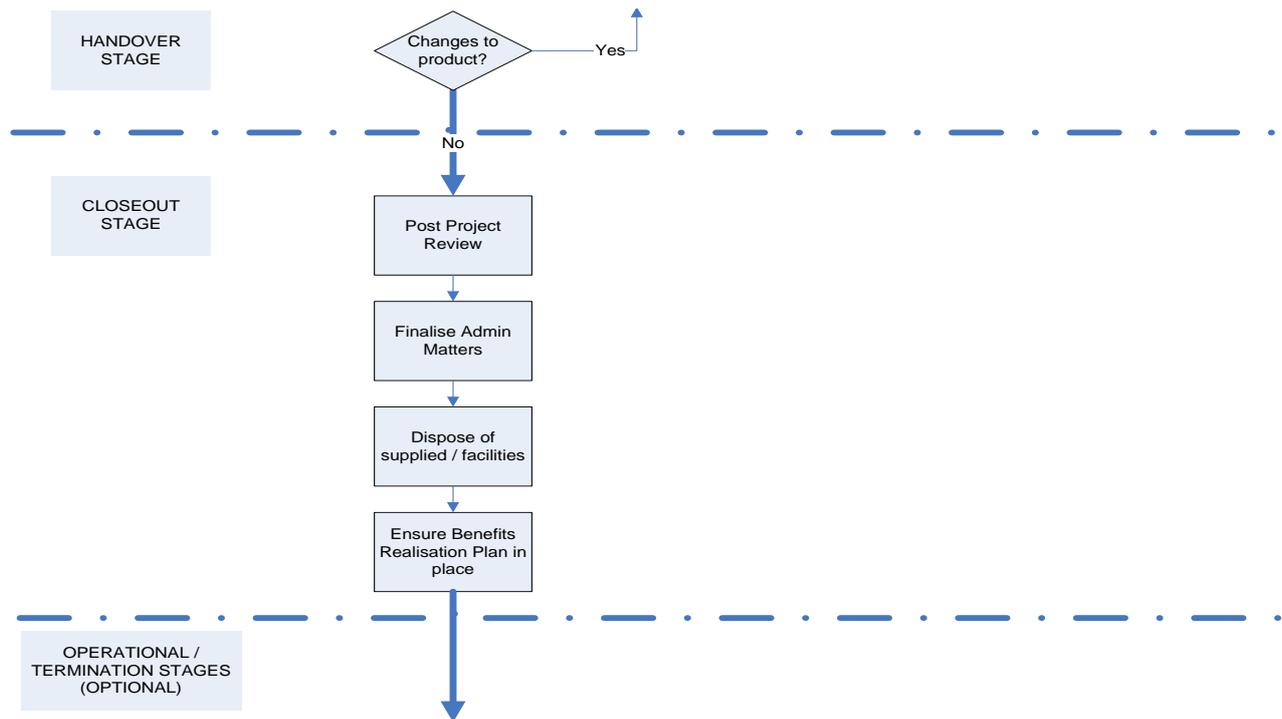
An aspect of Project Management that is often overlooked is the transition from 'project' to 'service'. An effect of this can be that the Project Manager becomes by default the manager of the resulting service, or that no-one actually takes responsibility for it, and it is allowed to drift along.

The Project Plan should therefore identify the project's exit strategy within the handover and close-out stage. It may be that the project is a discrete piece of work, such as might be the case when carrying out a review. In these circumstances, implementing changes resulting from such a review might form another project. Nonetheless, even if it appears obvious, it should be clearly stated that at the point the final milestone is reached (e.g. delivery of review report), the project is complete.

In other cases, project objectives will be the setting up of new services, installation of new systems, etc. Each project involves a number of discrete tasks and associated deliverables. There will be a point in the project, an identifiable milestone, where the objectives have been achieved, and continuing maintenance and development becomes part of someone's day to day job. This point must be identified in the Project Plan. ***The process of handover needs to be considered as something that has to be managed as part of the project, and therefore must be identified right at the Project Initiation Stage.***

Complete Implementation: Within this process, you should demonstrate the end product or service to the user (customer), running through how it works as a final product. The user (customer) should be involved in final testing of the product/service and should check that all of the acceptance criteria have been met. The criteria for acceptance of deliverables should be clearly laid out in the Project Plan. Depending on what is put in this section, the project board gives itself the ability to reject work that does not meet the objectives of the project. It is thus vital that the objectives and deliverables are clearly stated, backed up by unambiguous acceptance criteria which are tested by the user (customer). Note that the acceptance criteria will be subject to change by the project board if the objectives of the project change.

Physical Handover: As part of the handover process, it is necessary for the project to provide training and guidance material (inc FAQ, web pages, hints and tips and Helpsheets where

appropriate), well-defined support mechanisms whose staff are given the appropriate information to allow them to troubleshoot problems, product documentation such as DR/BC plans, OOH operations and instructions (if necessary), operational manuals and to perform the final installation of the product / service. All of these processes and documentation requirements should be planned for and included within the project schedule.

The final installation or delivery of the product may be broken down into pilots and / or phased roll outs to minimise impact should there be a problem.

Final Acceptance: This should be used to formalise the handover of the project to the customer. You should transfer responsibility and ownership of the service / product to those using and supporting it. A final acceptance test may need to be undertaken including the handover processes of training / help & support material, support mechanisms and DR/BC.

Post Project Review: After the project has been handed over and some time has passed to allow the product / service to become embedded (3-6 months), a review should be undertaken to assess if the project was a success and if it was conducted in the right way. The aim is to evaluate the following:

- Assess success criteria
- Determine what went well, what didn't go well and what could be done differently (separating cause from effect)
- Recognise team and individual performance
- Evaluate project processes and any tools / techniques used
- Establish if benefits have been realised and identify any unexpected benefits
- Put in place any corrective actions if benefits have not been realised
- Identify any problems that have been caused by the introduction of the product/service
- Identify lessons learned
- Did the project deliver all objectives, goals and outputs defined in the plan?

The review should be undertaken by the Project Manager and include opinions from the Project Sponsor, the project board, and key stakeholders.

> Further guidance and a template for post-project review is available in appendix C (document 11).

The final post project review document should be presented to ISSC for comment as well as to the project board. The Project Board will need to review the post-project review against the original objectives, and consider whether these have been met. Where Key Performance Indicators were set for the project, an assessment will also be needed on whether the extent to which they have been met is acceptable. The minutes of the project board will document the decision to close the project.

Finalise Admin: On completion of the project relevant data will need to be archived and other information can be disposed of. An assessment of what should be kept, for how long and what should be deleted will need to be made. Guidance is provided within the records retention policy which can be found on the ISD web site https://intranet.uea.ac.uk/is/strategies/infregs/Records+management/ISD+RRS.

> The minimum requirements should be to keep the original project plan (Inc schedule), the final schedule, stage reviews and post-project review. All lessons learned should be transferred to the lessons learned log (located in the ISD Share projects folder.

After closing the project other actions should include; paying any final bills, closing budgets, notifying the community of the new product / service and assessing team performance. Lessons Learned should be recorded in the main spreadsheet provided in the ISD Project share (\\central-vfs\central-div-share1\ISD\Projects\Project-Management).

Disposal: Now the project has finished, you should be in a position to dispose of any surplus materials or infrastructure / facilities you have provided. For example if you have implemented a new system on its own infrastructure, the old system and the old set of servers will need to be disposed of safely and securely.

2.5 Operations Stage (Optional – part of extended lifecycle)

The majority of projects will not move into this stage. This is normally reserved for projects that are highly innovative and require a high level of oversight and continuing development in order to allow the organisation to meet changing needs and to realise the benefits of the project. This will need careful planning and assessment of the responsibilities that the project will undertake. An example of the project that is using this stage is the SITS project.

2.6 Termination Stage (Optional – part of extended lifecycle)

This stage may happen long after the rest of the project has been completed. It is invoked in cases where the system delivered by the project has run its course and reached the end of its life, requiring it to be shut down and replaced by a new one.

Analysis of the project's KPIs may indicate that it is no longer realising the required benefits, and so should be shut down. Processes may include disposal of the old product / service and a final project review.

3. Tools and Techniques

Throughout the lifecycle of a project there will be a range of tools and techniques available to the project manager. Some of these are described below, informing you how and when they can be used with links to useful references.

3.1 Project Schedule

Microsoft Project: One particular tool that can be very effective if used properly is Microsoft Project. Rather than merely using the software to draw a Gantt chart, a network diagram should be created first, and from this the critical path can be worked out. Knowing what tasks are on the critical path [See page 27 for definition] and cannot be allowed to slip if achieving the target deadline is important is a major element in running a successful project. Once all the relevant data has been added to Project, it can be used to provide some very helpful reports on progress, commitment of resources, etc.

Useful Links:
- http://www.project-blog.com/?page_id=12
- http://www.youtube.com/watch?v=k8vdjVk48Yw

To arrange to have MS Project installed, see
https://intranet.uea.ac.uk/is/software/pcsoftwareatom/msproject.

Project Scope: This is where you define the deliverables and work needed to produce them. This should identify and describe what the project will include and what it will not include. This will be defined in the main project plan but may be adjusted as you develop each of the stage plans. The outcome of creating the scope is a schedule of tasks, resources and costs needed to complete the project. You should monitor the project so that scope creep does not get introduced. This is where changes are made to the scope increasing the size of the project and the amount of work and effort needed to complete it. This will usually have the effect of causing delays to the delivery of the project. Preventing scope creep is not always possible but you should minimise it by have a well-defined, clear and concise description of the project scope in the project plan. If scope creep were to occur this must be managed carefully as a change to the project. It should be recorded in your change control log and reported to the project sponsor / board. You may need to gain approval for the change. Within the project schedule you can set MS Project to baseline your original project schedule. This will fix the schedule at that point in time and allow you to measure your progress against this schedule. If scope creep were to occur, the project schedule should be changed and the baseline re-set.

Useful Links:
- http://www.projectsmart.co.uk/managing-scope-creep.html
- http://www.techrepublic.com/article/seven-steps-for-avoiding-scope-creep/1045555
- http://www.project-blog.com/?p=72

***Project Schedule Structure:*** When creating your project schedule it is important to gain an understanding of the tasks involved in achieving each deliverable, the resource needed, any associated costs with individual tasks, estimated timescales

for completing each task and any dependencies between the tasks and deliverables being undertaken. Figure 3 below shows each step that you can take to complete the schedule. The best way to establish the tasks and how these should be structured in a plan is by having a brainstorming meeting with those involved in the project. This could be completed in the project initiation meeting or a separate more detailed session.

Figure 3: *Process for creating a project schedule*
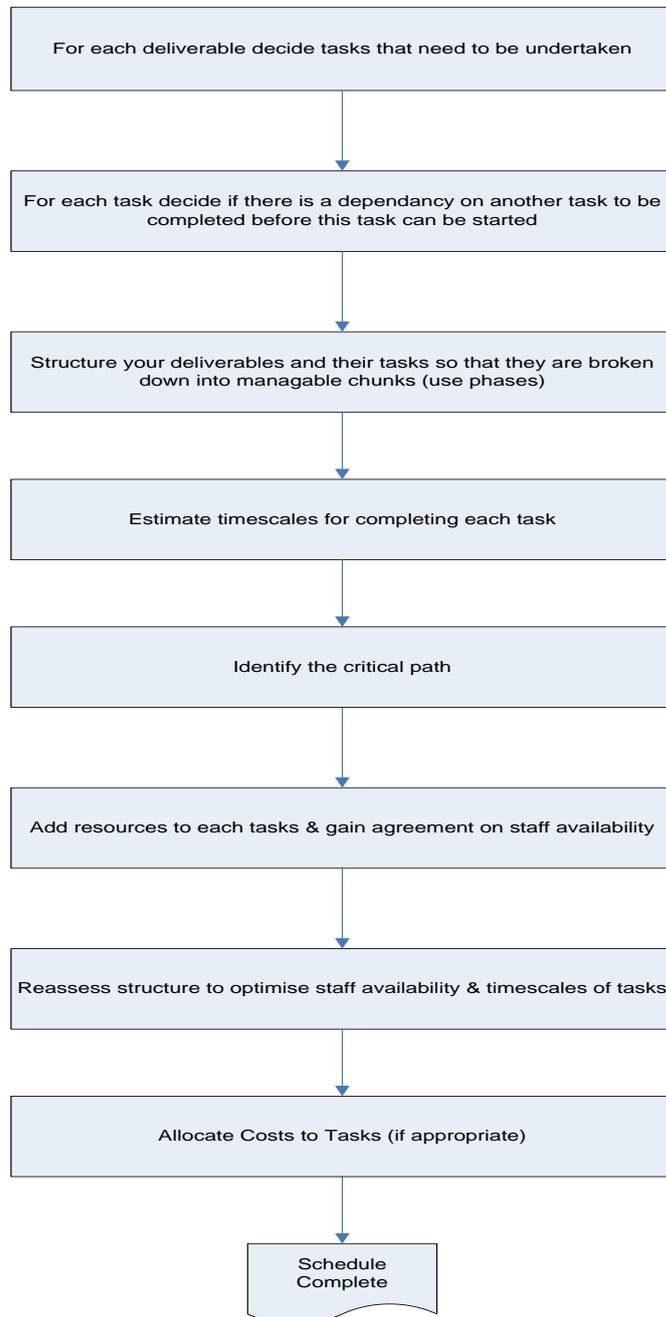
When you have completed the first draft of the project schedule you should assess where you will need to check the quality of the project. By adding in checkpoints to the schedule you are able to make an assessment of the work taken place, any risks that may be occurring and any issues (problems) to see if the project is still on track. These checkpoints can be in the guise of a project milestone which indicate a

significant point in the project such as completing and signing-off a deliverable, Checks to establish you are in the right position to be able to proceed to the next stage or key decision points where project board meetings may need to take place.

Useful Links:
- http://www.mindtools.com/pages/article/newPPM_71.htm
- http://en.wikipedia.org/wiki/Milestone_%28project_management%29
- http://en.wikipedia.org/wiki/Critical_Path_Method
- http://projectmanagementmonkey.blogspot.co.uk/2009/05/brief-tip-7-choose-your-checkpoints.html

Estimating Timescales: Estimating is approximation of project time and cost targets that are refined throughout the project lifecycle. When creating the project schedule in the main project plan at the beginning of the project it is difficult to establish accurate timescales. Three methods can be used throughout the project to help adjust timescales to reflect a more accurate picture. ***Bottom-up estimating*** is where you break down the project tasks in to a high level of detail and gain understanding of the timescales for each individual task. ***Comparative estimating*** is where you use historical data and information of similar projects to determine the most appropriate timescales. Scale, complexity and type of technology employed should be considered when comparing the projects so as to provide a more accurate estimate. ***Parametric estimating*** uses defined variables by which a project can be measured. These are then multiplied to establish a timescale. E.g. Time needed for a car journey to Edinburgh from Norwich would include variables such as distance, fuel consumption of car (number of times you need to refuel), route (motorways or A roads), a delay factor and number of comfort breaks you require. If these are all considered and time allocated for each you can estimate how long it will take. In real life, we use a mix of all three methods to help provide a reliable estimate.

Useful Links:
- http://www.mindtools.com/pages/article/newPPM_01.htm
- http://www.quanta.co.uk/sites/default/files/podcasts/4-3_Estimating.mp3

Critical Path Method: Critical path method of scheduling and monitoring is used on schedules when you have certainty over the duration that tasks will take. It essentially identifies those tasks which are dependent on one another and do not have any flexibility to have their duration changed or moved as it will result in the end date of the project being delayed or moved. This can be used to highlight those tasks that you need to monitor very closely and ensure that no delay of any sort is encountered on these tasks. If a delay does occur you know that this will impact on the project and will need to be highlight to the project board and sponsor to either put in place mitigation to resolve the issue or reassess if the project still provides the benefits agreed in the plan and this is still value for money.

Useful Links:
- http://en.wikipedia.org/wiki/Critical_path_method
- http://www.youtube.com/watch?v=DdDzybQ_9vM&feature=related
- http://en.wikipedia.org/wiki/Program_Evaluation_and_Review_Technique

3.2 Managing the Project

Issues Management: Is the process by which concerns; that threaten the project objectives and which cannot be resolved by the project manager; are identified and addressed to remove the threat. Issues are threats on project objectives and should be differentiated from problems that may occur when undertaking daily tasks. Issues should not be confused with risks. A risk is a threat where it is not known if that threat will actually happen or not. Issues have already happened and therefore the uncertainty does not exist. Issues are outside the direct control of the project manager. They can in many circumstances be the main cause of a project failure if left unaddressed.

Issues must be dealt with speedily so that they can, if possible, be resolved and clear the way for further progress to be made. They should therefore be drawn to the attention of the Project Sponsor at the earliest opportunity for discussion, direction and advice to be given. If necessary the issue should be escalated to the project board.

An issue log can be used to record and track the progress from identification to resolution. Issues should be logged by the Project Manager, so that they can be tracked back in the event of queries and included in the Post Project Review. When logging issues you should record a description of the issue, who raised it, the date the issues was raised, possible consequences or impacts on the project, possible resolution/workaround, the resolution owner, the final outcome and date the issue was closed. One of the fundamental purposes of the project board is to resolve project issues. Therefore all issues should be reported to the project board in the highlight report. Common failures of issue management are:

- Wrongly identifying issues when they are just problems that the project manager should be able to resolve
- Wrongly identifying risks as issues
- Failure to escalate issues
- Failure to escalate an issue when the owner of the issue resolution has not resolved it in a timely manner

  Useful Links:
- http://www.mindtools.com/pages/article/newPPM_69.htm
- http://www.techrepublic.com/blog/project-management/three-minutes-to-effective-issue-management/3151

Risk Management: Risk management is a structured process for identifying risks, understanding them and managing them proactively. This should optimise project success by minimizing threats and maximising opportunities.

A risk event is "… an uncertain event or set of circumstances that, should it occur, will have an effect on achievement or one or more of the projects objectives" (Project Risk Analysis and Management Guide).

Project risk is "the exposure of stakeholders to the consequences of variations in outcome" (Project Risk Analysis and Management Guide).

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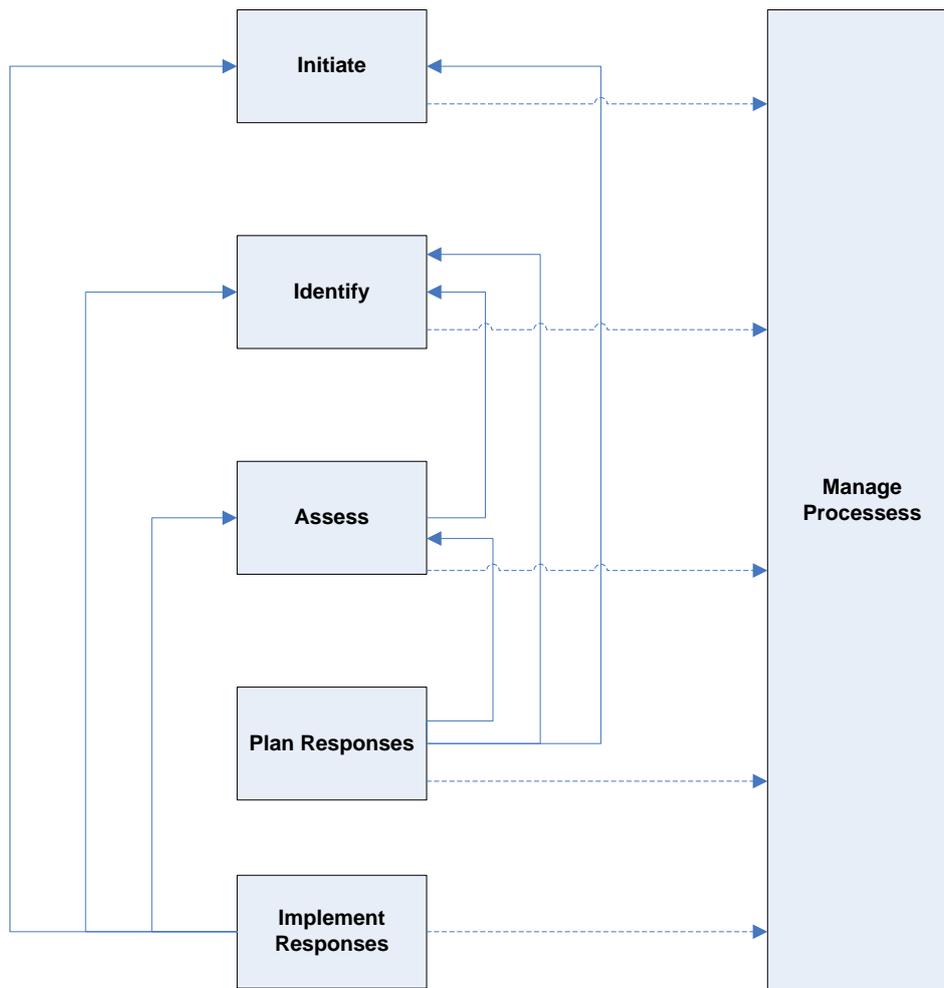**Figure 4:** *Process for managing risk (PRAM)*

Figure 4 above shows a process for managing risk which has been adopted and developed by the Association of Project Managers (APM). In brief terms, the process described below.

Initiate: This defines scope and objectives of the project so you are aware what to analyse for risk. You should also decide which methods to use to help identify risk (see risk identification).

Identify: Process to identify risk considering both threats and opportunities. The output of this stage is the risk log. Techniques that can be used to identify risk include:

- *Assumptions Analysis:* identify key assumptions (look in project plan) and evaluate risk of assumptions not occurring.
- *Constraints Analysis:* Similar to above but reviewing key constraints of the project to establish if any risk could occur.
- *Checklist:* A checklist will help project managers to look at specific areas where risk could occur.
- *Workshops:* Performing brainstorming workshops with stakeholders may help identify risks that the project manager will be unaware of. Other analysis tools that can be used in the workshop to facilitate the brainstorming include:
  - SWOT / PESTLE Analysis
  - Stakeholder Analysis

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- o Using techniques already described above
- *Delphi Technique:* Some at the brainstorming session may not have the confidence to raise their point of view or may want to raise something anonymously. The Delphi technique reiterative process of sending out a document containing risks and asking for people's opinions (via email) to be sent back directly to the project manager. The responses are collated and added to the document and then sent back out for review. This continues until opinions are exhausted.
- *Previous Experience:* By reviewing previous & similar project documents such as lessons learned, post-project reviews, issues & risk logs you may ascertain risks for your own project. You could also use internet search engines to see if anybody else has encountered risk on a similar project or discuss in forums to see what other have encountered when doing a similar project. If you are purchasing a product / software such as an information system then consultancy and professional services should be the ideal candidates for discussing risk they have encountered doing the same work elsewhere.

Assess: This key stage will assess each risk to evaluate the level of impact the risk has on the project and the likelihood it will occur. The overall severity of the risk can be identified by deciding on the level of impact (high, medium, low) and probability (high, medium, low) and placing it on a probability/impact matrix as in table 1.

Table 1: *Assessing the severity of the risk*

|				
Probability (likelihood)	High	Medium	High	Critical
	Medium	Low	Medium	High
	Low	Very Low	Low	Medium
		Low	Medium	High
	Impact			

Once you have decided on the level of risk this should be recorded in the risk log.

Plan Response: Once you have identified and assessed each risk, an appropriate means of dealing with that risk should be decided upon. You can design mitigation against the risk or a number of options to reduce the risk. A decision will be needed on which response is appropriate. Figure 5 shows the options available to any risk.

It is essential that you have a strategy to deal with the risk, putting in place a course of action to try and prevent or avoid it occurring (e.g. put in place mitigation such as buying consultancy to solve a problem that your own staff do not have experience of); transfer the risk such as passing the risk onto someone else (e.g. outsourcing a complete package such as externally hosted and managed finance system); ignore the risk (e.g. accept that it could happen but that the impact is low enough to accept such as risk of air conditioning failing in a data centre could mean a large financial investment but risk of if actually happening is low and the second data centre could take over if it occurred therefore the impact on service is minimal); exploit the risk to

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your advantage (e.g. There may be a risk that a new system does not meet all of your needs from day one. There may be an opportunity to partner the software company so as to enhance the product to precisely meet your needs and so shape the on-going development life cycle of the product). Any decision should be noted in the "Risk reduction strategy/contingency" column in the risk log. In Figure 5 It shows that the options for threats are to with Avoid or accept the risk which may impact on the project scope. An opportunity could be used to exploit an advantage and change project scope or ignored. If threats and opportunities are left (accepted or ignored) then they should be monitored for changes and likelihood of affecting the project.

Figure 5: *Risk Response Strategies*
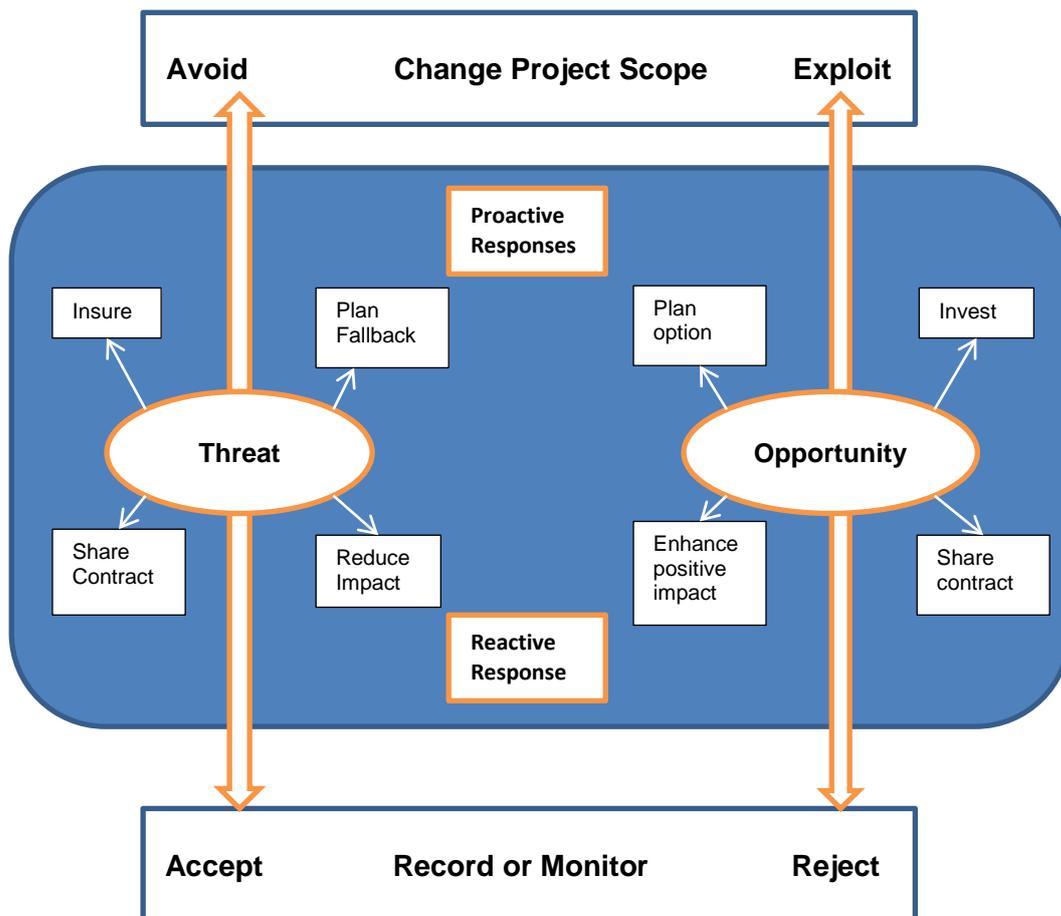
Implement Response: Once you have decided what action to take this will need to be implemented. If internal resource is needed, this will need to be added to the project schedule and an owner added to the risk log. When the actions have been completed, the risk log will need to be updated with a closure date. Once the actions are completed, a re-assessment of risk should be undertaken in case any new risks have been introduced.

Useful Links:
- http://en.wikipedia.org/wiki/Risk_management
- http://www.projectperfect.com.au/info_risk_mgmt.php

- http://books.google.co.uk/books?id=_gJHsyQah98C&lpg=PA29&ots=uyqKfBFfyF&dq=project%20management%20%2B%20PRAM&pg=PP1#v=onepage&q&f=false
- http://www.mindtools.com/pages/article/newPPM_78.htm
- http://pmtips.net/defining-risk-management-part-6-risk-response/
- http://www.projectsmart.co.uk/swot-analysis.html
- http://www.jiscinfonet.ac.uk/tools/pestle-swot

Communications: Communication is the giving, receiving, processing and interpretation of information. Information can be conveyed verbally, non-verbally, actively, passively formally, informally, consciously or unconsciously. Good communication:

- Ensures a common understanding
- Ensures people know what to do
- Increases team commitment
- Encourages project interest
- Enables identification with a project
- Facilitates change
- Avoids costly communication failures
- Supports personal development/growth

Barriers to communication include:

- Out of date information
- Too much information
- Distance
- Inaccurate, incomplete or ambiguous information
- Focused at inappropriate level (e.g. technical level rather than summary level)
- Receiver hearing what they want to hear
- Sender or Receiver having different perceptions
- Receiver ignoring conflicting information and doing as they see fit
- Words meaning different things to different people

How to improve communications:

- Obtain feedback
- Establish multiple communication channels
- Use face to face if possible
- Find out how sensitive the receiver is to your communications
- Be aware of body language
- Communicate at the right time
- Reinforce words with actions
- Use simple language (one that they understand)
- Say the same thing in different ways
- When you get an agreement write it down for reference (for all parties to see)

The project plan should contain a communications plan explaining at the project's initiation how communication matters will be handled. A communications plan should include:

- Stakeholder Group & how to contact them

- Description of key messages & information
- Format (Communication channel i.e. face to face, email, blog, group meetings etc.)
- Responsibilities for delivery of messages
- Description of channels to be used
- Frequency of communication activities
- Feedback required
- How and when to review performance

A key tool for understanding how to communicate to different groups is to perform a stakeholder analysis. This is explained in more detail in section 4.3 Managing People.

Useful Links:
- http://www.collegiateproject.com/articles/Developing%20Your%20Project%20Communication%20Plan.pdf
- http://www.pma.doit.wisc.edu/plan/3-1/tools.html
- http://en.wikipedia.org/wiki/Stakeholder_analysis

3.3 Managing People

Teamwork & Motivation: Teamwork is when people work collaboratively towards a common goal gaining from synergy as distinct from other ways that individuals can work within a group. It's unlikely that one individual will have the knowledge and skills required to undertake all the activities necessary to successfully complete a modern project. A team-based approach is more likely to be successful because an effective team will apply its collective knowledge, skills and experience to the problem.

When forming teams for a project ensure you consider that effective teams are:
- Task orientated (everyone knows their task)
- Co-ordinated
- Mutually supportive
- Accountable to each other (if one fails they all fail)
- Comprised of people with complementary skills (range of skills to provide a flexible team)
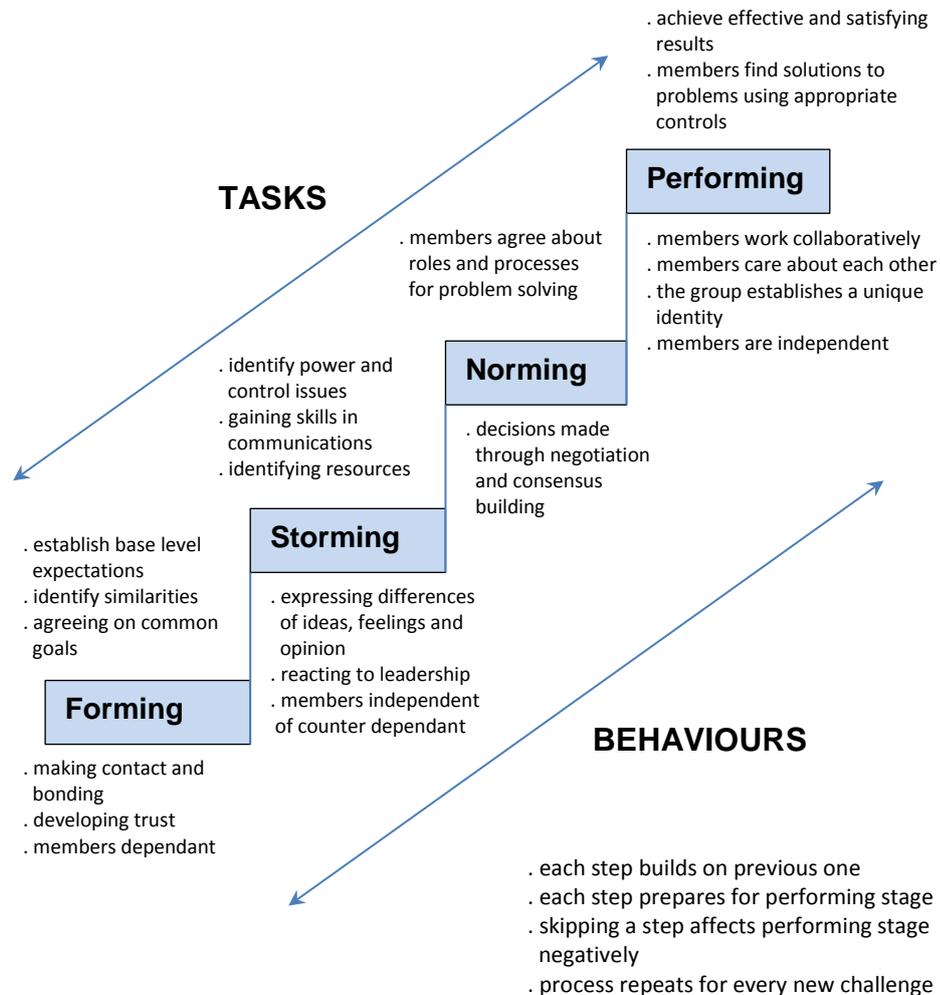
When forming teams for a project also consider the following:
- Skills needed for the project vs. skills inventory of the business
- Availability of people
- Relocation of people
- Will the personalities gel
- Is each person intrigued by the challenge?
- Is each person resilient enough?

There are several models on team development and motivation. The Tuckman Model describes how a team goes through a process of development. Figure 6 shows the five stages a team can go through. This shows that consideration should be made of the team's needs in order to allow them to get from Forming to the Performing stage. This is especially true for projects where the project team is usually compiled of a group of people who have not worked together before. The project manager needs to facilitate the process of the project team moving from the forming stage to the

performing stage as quickly as possible without it getting stuck at one of the early stages. The effect of a team not reaching the performing stage is that progress will be slowed and the schedule is more likely to slip. When creating the project schedule you should take into account the level of development needed to get that team to perform effectively.

Figure 6: *Tuckman's Team Development Model*

TASKS

. achieve effective and satisfying results
. members find solutions to problems using appropriate controls

Performing

. members work collaboratively
. members care about each other
. the group establishes a unique identity
. members are independent

. members agree about roles and processes for problem solving

Norming

. decisions made through negotiation and consensus building

. identify power and control issues
. gaining skills in communications
. identifying resources

Storming

. expressing differences of ideas, feelings and opinion
. reacting to leadership
. members independent of counter dependant

. establish base level expectations
. identify similarities
. agreeing on common goals

Forming

. making contact and bonding
. developing trust
. members dependant

BEHAVIOURS

. each step builds on previous one
. each step prepares for performing stage
. skipping a step affects performing stage negatively
. process repeats for every new challenge

Forming: Everyone's coming together, getting to know each other and able to express their preferences. Group members tend to be on their best behaviour, depending on the incentive. The project manager needs to define roles and responsibilities, clarify objectives, set goals and targets, develop the project plan, allocate resources and initiate action.

Storming: The honeymoon is over. Everyone is stretched trying to do their day job as well as trying to perform project work in "other peoples' way" but each person wants to do it their way, or get a way decided. People are tired of the group interaction and just want to get the work done. The project manager needs to resolve conflict, clarify roles and responsibilities, reaffirm objectives, goals and targets, ensure sufficient resources are available, motivate staff, manage politics and urge progress.

Norming: Having enough experience together now to set group rules, and group goals. The group is becoming more decisive but still struggles to understand the best way to complete tasks. The project manager needs to encourage progress, continue to motivate, provide feedback, communicate effectively, coach and support the team and drive performance.

Performing: The big wrinkles are worked out. The group knows what it is doing and what its goals are. The processes for performing work have been refined. The group is now able to celebrate success. The project manager needs to continue to encourage and motivate, provide positive feedback, communicate and celebrate success.

Other models to analyse the role people take within a team can be used such as Belbin's Team Role. This model allocates a role to people with certain characteristics so that you are able to understand how best to use them within your team. Table 2 shows the types of roles and the positive and negative aspects of each when included in a project team.

Table 2*: Belbin's Team Roles*

Role	Positives	Negatives
Implementer	Organising; practical	Inflexible
Co-ordinator	Welcoming; strong sense of objectives	Ordinary intellect or creativity
Shaper	Drive	Prone to impatience and provocation
Plant	Genius	Up in the clouds
Resource Investigator	Knows a man/woman who can	Soon loses interest
Monitor / Evaluator	Judgement; critical reasoning	Unimaginative; not inspirational
Team worker	Promotes team spirit	indecisive
Completer / Finisher	Perfectionist	Tends to worry about everything
Specialist	Technically specialised	Uninterested outside own area

Belbin's theory shows that an effective team needs a balance of personality roles. Belbin identified nine roles and suggests that an imbalance will compromise the team's performance. This is an important aspect to consider especially when considering who should be involved the project team.
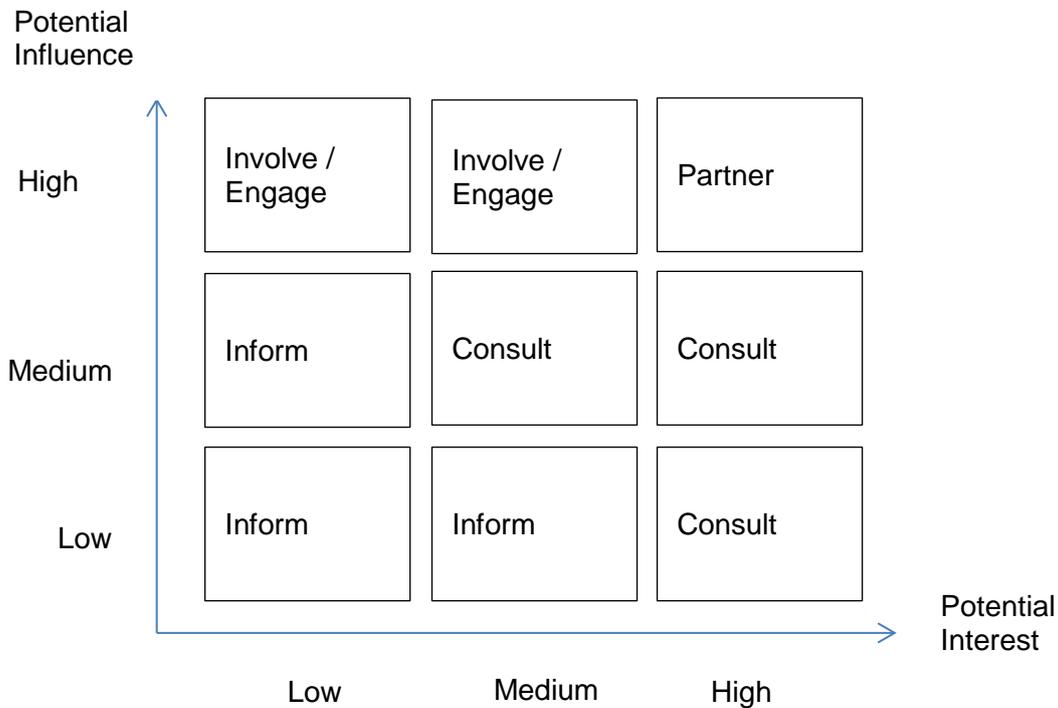
Useful Links:
- http://en.wikipedia.org/wiki/Tuckman%27s_stages_of_group_development
- http://www.managementcentre.co.uk/knowledge_base_detail.php/648/High%20performing%20teams:%20Belbin%27s%20team%20roles
- http://www.quanta.co.uk/sites/default/files/podcasts/7-2_Teamwork.mp3

Stakeholder Management: Stakeholder management is the systematic identification, analysis and planning of actions to communicate with, negotiate with and influence stakeholders. Stakeholders are all those who have an interest or role in the project or are impacted by the project or can impact the project itself. The first key step in stakeholder management is to identify all stakeholders. This can be achieved

by using brainstorming meetings or looking at similar projects for types of people. Decide on the level and area of interest for each stakeholder. Identify the power (or influence) each stakeholder has and determine for each stakeholder if they are for or against the project. Plot these results on a stakeholder grid as in **Error! Reference source not found.**.

Figure 7: *Stakeholder Influence / Interest Grid*

Potential Influence			
High	Involve / Engage	Involve / Engage	Partner
Medium	Inform	Consult	Consult
Low	Inform	Inform	Consult
	Low	Medium	High → Potential Interest

Once you have an understanding of the groups of stakeholders and their interest / influence over the project you are in a better position to understand how to handle them. You can use a table (see table 3) to identify all stakeholders, their level of influence and interest and then comment on what the implications of this are the project. Suggest any mitigating actions that may need to be taken to minimise any of the impacts suggested. Once you have this information it will be easier to perform the final step of completing the communications plan. An example is summarised in table 4. Consider the best means of communicating to different groups of people; the type of language and detail you need to provide; how frequently you should communicate with them.

Table 3: Stakeholder interest and implications

Stakeholder	Interests / influence	Implications / actions
Shareholders	Business to make as much profit (return on capital) as possible.	Remove investment or directors if not happy.
Management	To earn as much profit as possible.	Make wrong decision, bad mgmt. can lose profit.
Employees	Development of products, values of company & business goals.	Can move companies, create inferior products & lose custom
Current customers	To have a product that meets their needs. Can influence others to purchase.	Give bad publicity and lose custom.
Competitors	Influence customer base decisions.	Can reduce profits if competition is high.

You may need to consider different means of communication for the same group of people, depending on the nature of the communication. See the ISD Communications guide for further help.

Table 4: Stakeholder communications plan

| Stakeholder name	Type of communication	Description	Frequency of communication
[Academic staff]	[Email]	[Summary of progress on the project and notification of key dates that will affect them]	[Monthly updates, plus remind a week in advance of key dates, and then on the key dates themselves]
[Student community]	[Email]	Notification of key dates that will affect them	[Remind a week in advance of key dates, and then on the key dates themselves]

Useful Links:
- http://en.wikipedia.org/wiki/Stakeholder_analysis
- http://en.wikipedia.org/wiki/Stakeholder_management
- http://www.youtube.com/watch?v=BkUCcJwwvAQ
- http://www.quanta.co.uk/sites/default/files/podcasts/2-2_Stakeholder_Management.mp3

Leadership & Motivation: Leadership is essential to the success of projects. It can be defined as the ability to establish vision and direction, to influence and align others towards a common purpose, and to empower and inspire people to achieve project success. It enables the project to proceed in an environment of change and uncertainty.

There are numerous theories and models on what makes a good leader. McGregor defines leadership styles which are commonly used. Theory X leaders believe people must be made to work. They instruct, drive and monitor people very closely. Theory Y leaders allow workers to self-manage and are democratic in nature.

Hersey and Blanchard take this concept of leadership styles further by stating that the type of style you apply should change according to the maturity position of the individual. As an example in Figure 8 if an individual was new to the organisation they would have a low maturity level (position M1). A low maturity level is where the person has little in terms of commitment (loyalty) to the business and low competence as they have not been shown or understand their new job as yet. The leadership style would therefore be one of explaining the business goals and how they fit in and spending a lot of time explaining and showing them how to complete their tasks (position S1). As the individual gains understanding of their work and gains in commitment (loyalty over time), your leadership style as project manager will change until you get to position S4 / M4 on the diagram. This is where the individual is very loyal and understands what needs to be done. Leadership style is much more about delegating tasks to the individual.

Figure 8: *Situational Leadership*
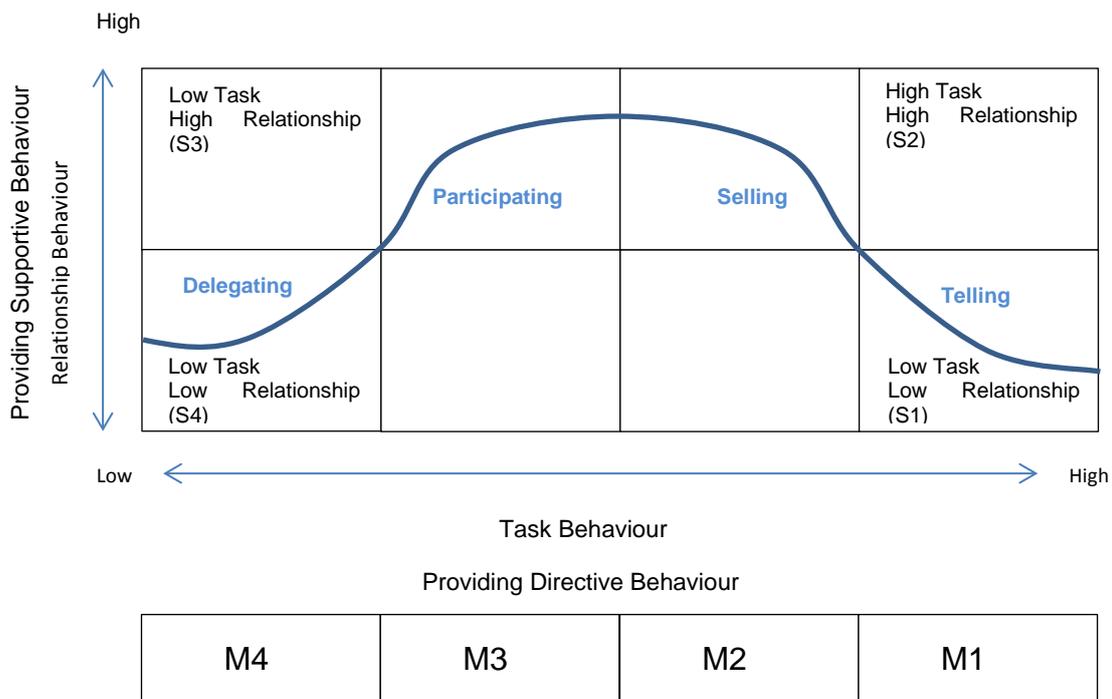
If this leadership style was to be applied to the Tuckman's team development (Figure 6) you can see how your leadership style will change when managing the project team (see Figure 9).

Figure 9: *Leadership styles applied to a project team*
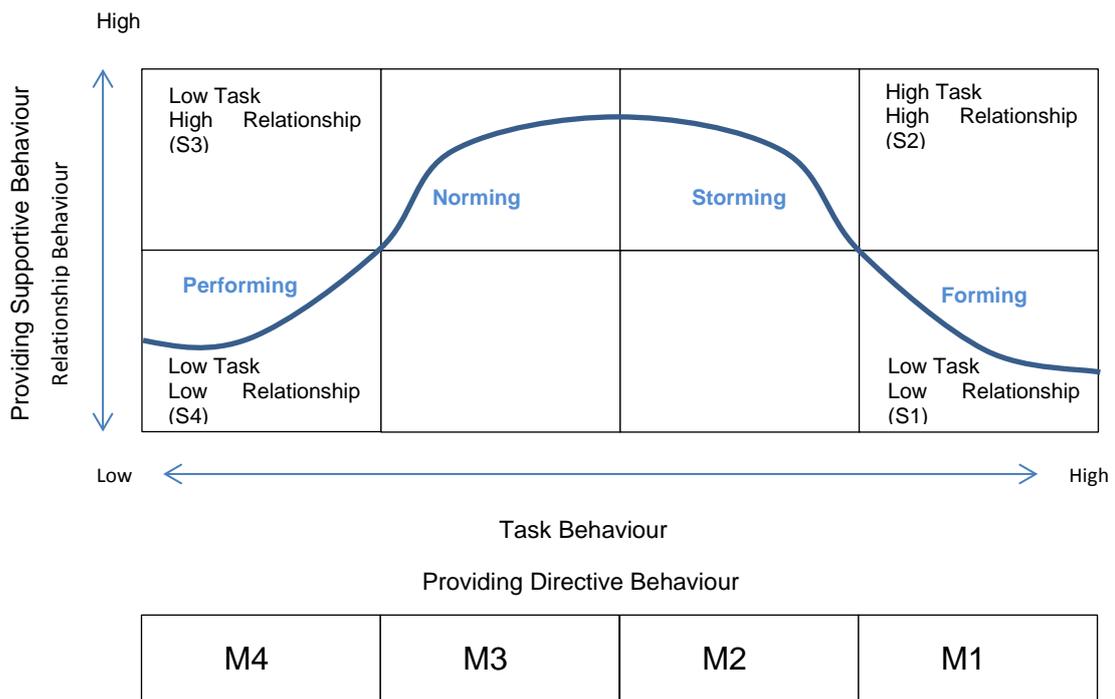
In understanding your team and providing them with leadership, you also need to understand what motivates individuals. Leaders should provide opportunity to release the potential that exists within their people. People work hard if they have an emotional need for a sense of security or recognition. People work to achieve goals which in turn satisfy their needs. Maslow's Hierarchy of Needs shown in Figure 10 shows that people attain the greatest level of motivation when they reach the top of the pyramid. At this point they are likely to go the extra mile to ensure tasks are completed to the satisfaction of the customer and within defined timescales.

Figure 10*: Maslow's Hierarchy of Needs*
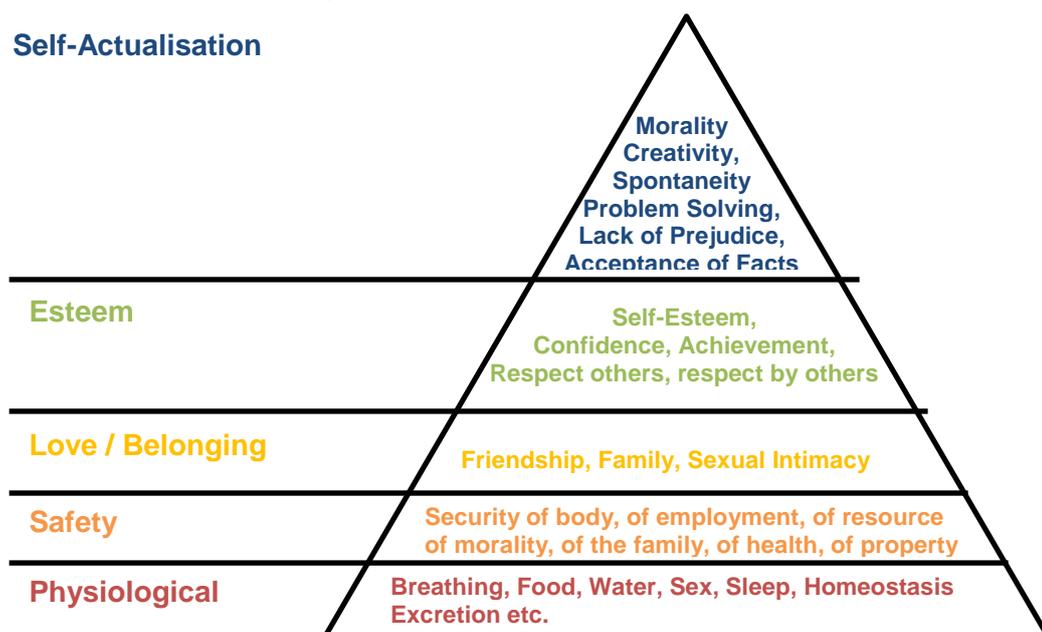
Herzberg defined extrinsic or hygienic factors which if absent would cause dissatisfaction and demotivate people e.g. lack of heating/cooling in the office they work in. Intrinsic factors or motivational factors are also defined which would not demotivate if absent but causes a lack of satisfaction which may lead to apathy or a lack of interest in their work. Links are provided explaining these factors in more detail but a project manager would have to ensure all appropriate hygienic factors were in place and motivational factors were provided.

Useful Links:
- http://www.project-management-skills.com/maslow-theory-of-motivation.html
- http://www.mindtools.com/pages/article/newTMM_74.htm
- http://en.wikipedia.org/wiki/Two-factor_theory
- http://en.wikipedia.org/wiki/Situational_leadership
- http://www.quanta.co.uk/sites/default/files/podcasts/7-3_Leadership.mp3

Conflict: Conflict management is the process of identifying and addressing differences that if unmanaged would affect project objectives. Effective conflict management prevents differences becoming destructive elements in a project. Conflict is a process that begins when one party perceives that another party has negatively affected or is about to negatively affect something that the first party cares about. Conflict management is the ability to manage conflict creatively and effectively. Figure 11 shows that conflict has the potential to occur during most stages of the project lifecycle.

Figure 11: *Conflict and the Project Lifecycle*
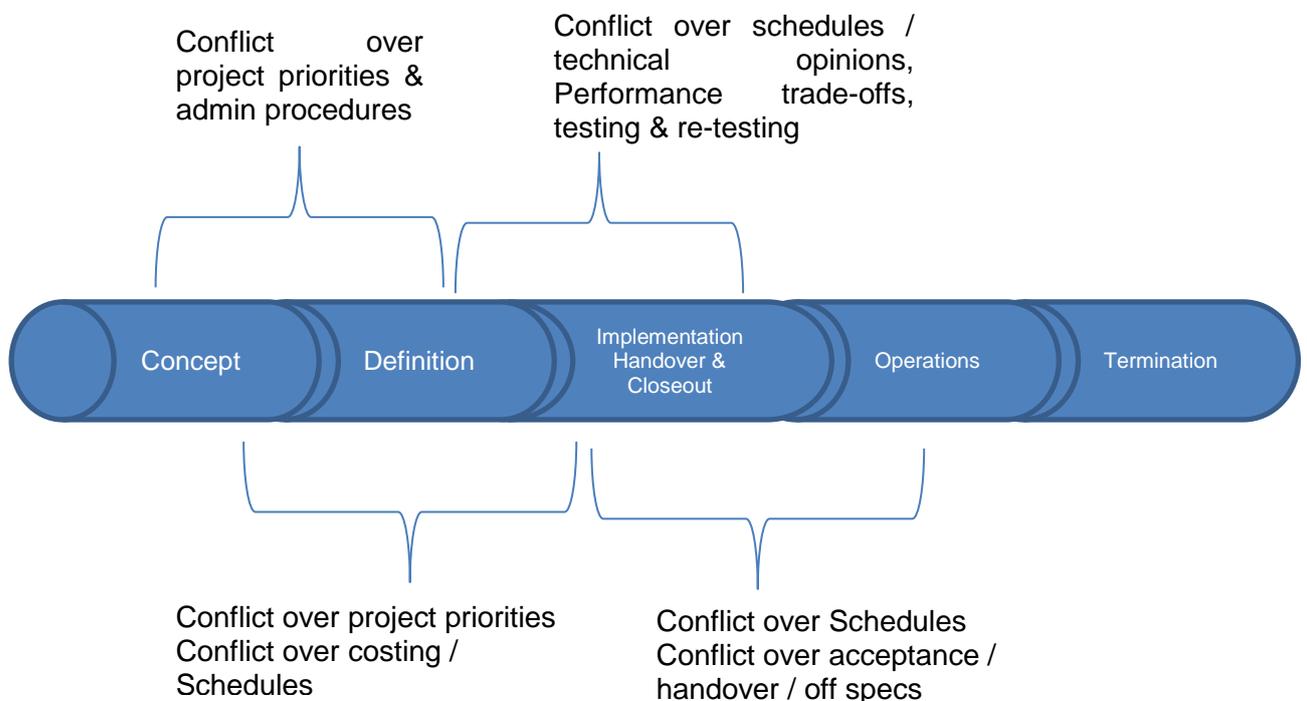
Consequences of conflict can be both positive and harmful. Positive consequences include:

- *Motivate:* improved performance and regard for the task being undertaken
- *Builds identity:* develops loyalty and encourages openness
- *Increases innovation:* promotes competition which may lead to a better solution

Harmful consequences include:
- Competing goals: loss of communication and co-operation
- Lack of respect, trust and harmony
- Increases chance of mistakes & causes waste
- Break-up of team, back stabbing, rumour, arguments etc.

The causes of conflict are usually:
- Friction, discontent, previous hostility, personality clash, rumours etc.
- Hidden agenda, stress, fear
- Time, cost, resource changes, peer pressure
- Failure to consult, inform or include

How to handle conflict:
- Focus on fact
- Take account of opinions
- Establish needs & wants
- Build allies
- Find common ground
- Explore alternatives
- Defuse emotions
- Find mutual gain solution

Thomas-Kilmann has built a model which identifies five styles of dealing with conflict which can be seen in Figure 12. This model applies a style of conflict according to the level of cooperativeness (level you are willing to give to allow the other part to fulfil their objective) and assertiveness (level you want your objectives to be fulfilled).

Collaborate: This is the best position whereby both parties have high levels of cooperativeness and assertiveness. Both parties win by thinking outside of the box and coming up with a solution to meet both their needs. It's rare that this style can be achieved as its time consuming and difficult to achieve.

Competing: This is where assertiveness is high and cooperativeness is low. One side will lose as the winning side's objectives are prioritised.

Compromising: Both sides give something up but also sacrifice some of their objectives and fulfilling other objectives. Both sides win and lose. There are medium levels of co-operation and assertiveness.

Avoiding: Both sides lose as assertiveness and cooperativeness are low. .e.g. resource goes on holiday during critical time to complete a task. Both sides do not complete their objectives or resolve the issue by asking resource to change holiday or getting different resource in to complete the tasks. Generally causes delays to all parties.

Accommodating: This is where one party decides to accommodate the others objectives. One side may win at this point in time but it may be a calculated decision to ensure the favour is returned in the future.

Figure 12: *Thomas-Kilmann Model*
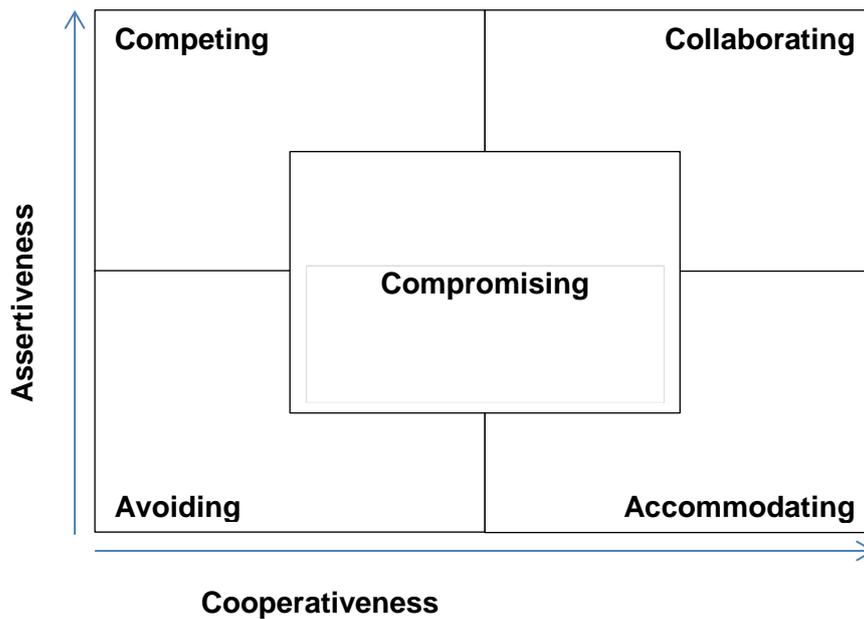
Useful Links:
- http://www.mindtools.com/pages/article/newLDR_81.htm
- http://youtu.be/QFf88IVl_Wc
- http://www.quanta.co.uk/sites/default/files/podcasts/7-4_Conflict_Management.mp3

Negotiation: Negotiation is a search for agreement, seeking acceptance, consensus and alignment of views. This is linked very closely to conflict management but is more of a pre-emptive approach to best position yourself to gain the outcomes you need. Negotiation in a project can take place on an informal basis such as during procurement and between signatories to a contract. Figure 13 shows five stages you can go through in negotiation.

Figure 13*: 5-stage process for negotiation*
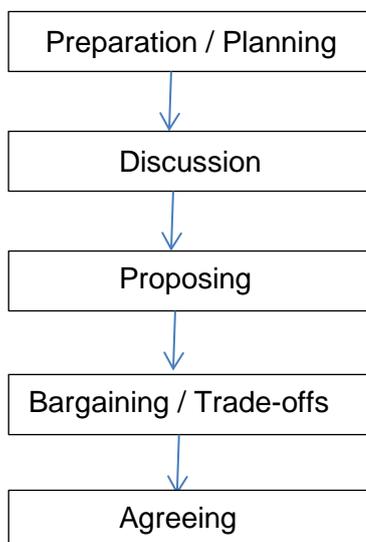
Preparation / Planning: Understand the issue and study relevant material (knowledge is power). Learn and understand the other person's objectives. Anticipate their strategy. Define own objective and priorities. Define own strategy such as MoSCoW in table 5. Decide what you **M**ust have, **S**hould have, **C**ould have and **W**on't have.

Table 5: *MoSCoW*

	Tradable 1	Tradable 1	Tradable 1
Could Have			
Should Have			
Must have (Bottom Line)			

Discussion: During discussions ensure you know names and positions of everybody, make them feel comfortable, maintain a business-like approach, show confidence, limit distractions, keep a positive attitude and watch for reactions. Overall keep in control.

Proposals: For your proposal, during the discussion, ensure you have defined your objectives, don't overstate these but ensure you have scope for movement. Don't give too much away on the importance of each objective. Leave room for manoeuvre. After discussion, turn your proposal into something more formal by re-stating in writing the proposal and your opponents position.

Bargaining / Trade-off: The proposal can then form the basis for the bargaining stage where you try to change the others perception of where one would settle. Most agreements tend to fall somewhere in the middle of the range of initial proposals. Thus the first proposal is important to get right.

Agreeing: Closing the deal is all about the timing, agreeing the minor issues first and trading and conceding until all major issues are resolved. Summarise final position and don't re-open the discussion then get it in writing.

Overall it's essential that you:
- Prepare
- Know what you need, want and can give away
- Consider what they need and want
- Agree a strategy and prepare for answers and questions
- Avoid conflict
- Identify a common ground & test acceptance
- Confirm agreement and close the deal

Useful Links:
- http://www.mindtools.com/pages/article/newLDR_81.htm
- http://youtu.be/QFf88IVl_Wc
- http://en.wikipedia.org/wiki/MoSCoW_Method
- http://www.quanta.co.uk/sites/default/files/podcasts/7-5_Negotiation.mp3

4. Hints and Tips

Doing the thinking up front will save time and effort later on. The Project Initiation stage is vital to the success of any project, so that a clear understanding is reached about what the project is expected to produce.

Be obsessive about defining and communicating deliverables. These are the 'nuts and bolts' of the project – the tangible steps on the way to meeting the objectives of the project. Being able to 'tick off' deliverables along the way will help team morale, as well as demonstrating to the Board that something is happening.

Keep the schedule alive. Constantly monitor, and possibly use MS Project to illustrate the progress of tasks. Re-schedule where necessary, but remember to tell everyone timescales have changed! Follow the rules on escalation and gain approval if any changes are needed that may affect the delivery date and key milestones of the project – early warning is better than late apologies.

When things go wrong, remember the standard constraints… don't sacrifice quality and always consult with the project sponsor and project board to gain advice and direction. Every project has to work within 6 constraints, as illustrated in Figure 14.

Figure 14*: Standard Project Constraints*
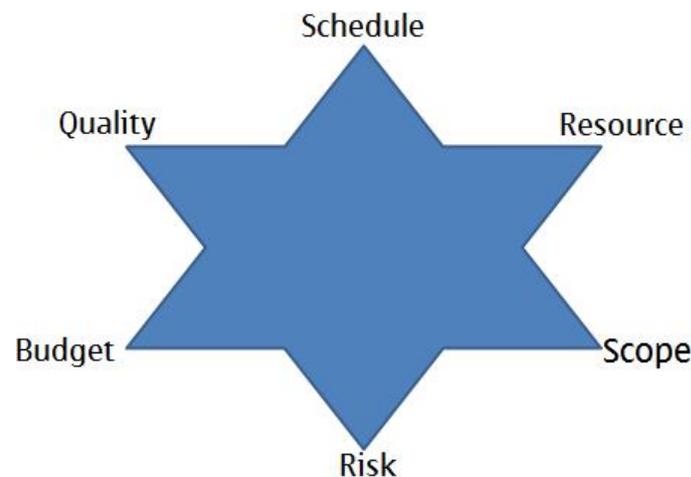
Changing any one of the constraints will impact the other five. Your aim is to apply the constraints to meet the unique needs of the project you're managing. You should be working with your stakeholders to make conscious decisions about the 6 constraints.

For example, if you're running a project that must hit a specific date, then if by going through the constraints with your stakeholders they determine that the date must be held but your budget can't be increased, then clearly they must make compromises around some or all of scope, quality, resource, or risk. It could be that through negotiation you agree that scope will be reduced and the quality bar will be lowered. Essentially the six constraints are a tool you can use to manage your stakeholders and their expectations.

Don't neglect the soft issues, such as:
- Briefing and communication
- Consultation
- Training
- Documentation
- Testing (IT projects)
- Planning for cut-over to service
- Data conversion (IT projects)
- Initial user support (IT projects)

Don't forget that this Handbook only covers the application of the ISD methodology to Project Management. There are lots of other things to take into account when creating a project plan, such as financial regulations; personnel

regulations, internal and external auditor requirements, legislation and regulatory requirement (FOI/DPA) etc. Don't assume that we will continue to do things the way they been done in the past: there will sometimes be a need to carry out a Business Process Review, which is another subject altogether!

The Role of the Project Manager: is to facilitate the means for planning, providing direction, monitoring the project, providing control and co-ordination.

Figure 15: *The Role of the Project Manager*

Planning   Directing

Controlling   Monitoring
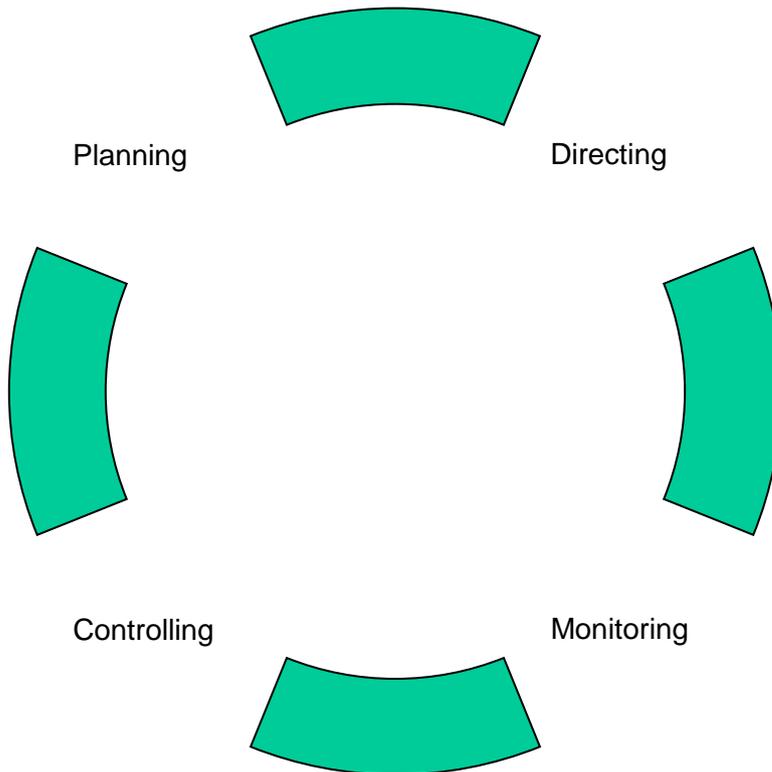
Measure your success: The project schedule acts as a measurement of time, the budget measures costs, and quality is measured by customers' requirements being met and business benefits being met. Use key performance indicators to measure your success criteria, making these clear and unambiguous.

Top 5 Success factors for a project:

1. Communication:
   a. Provide appropriate level of communications (don't overdo it or ignore people)
   b. Speak the same language as your audience
   c. Perform Stakeholder analysis to understand who your audience are, their interest and how you should communicate to them
   d. Communicate in simple terms so everybody understands your message.
   e. Provides clear understanding of the project objectives and key benefits needed (where we are going and how we will know when we get there)

    f.   Benefits of good communication are that it prevents any blockages occurring due to misunderstandings which may result in conflict (this lowers risk levels)

2. Risk Identification:
    a. Identify risks using project plan assumptions & stakeholder engagement
    b. Mitigate, accept or remove the risk
    c. Re-assess risks after mitigation to ensure this has not introduced further risks
    d. Benefits of risk identification are that it prevents failure of tasks and reduces any impact on the project

3. Leadership Style:
    a. Appropriate style applied to types of team / people
    b. Gets the most out of the team by understanding their motivations
    c. Provides appropriate support to the team
    d. Benefits are that the team work effectively and efficiently which is unlikely to cause delays to tasks.

4. Scheduling & Estimating:
    a. Accurate scheduling and estimating reduces likelihood or resource conflicts
    b. Tasks are complete in right order
    c. Internal / external dependencies are known & potential impacts are reduced
    d. Good estimating ensures more accurate & achievable timescales
    e. Creating the right sized work packages within the schedule makes the project easier to manage
    f. Remember to add in time for planning & transition
    g. Benefits are that task are completed in right order & delivered in a timely manner.

5. Direction & Advice:
    a. Funds made available when needed
    b. Direction given to ensure you continue to meet business case
    c. Advice given to clarify goals and resolve issues
    d. Benefits are that you are more likely to meet business needs and business benefits

Remember this all hinges on your personal drive, motivation and leadership; having the right team with the right skill set and expertise for the project and having well defined roles within the project.

5. Project support

If you are new to project management within ISD, there is help available from the ISD Project Manager as follows. The ISD Project Manager:

- will provide Project Managers with proactive monitoring of the management of a project through the project lifecycle. This will be conducted via informal ad hoc meetings held as necessary.

- will provide Project Managers with instructions on the use of a tool or technique (as described in Section 3) on occasions where it was felt useful or necessary to address a need in the management of a project.

- may on occasion organise a meeting of PMs to discuss issues coming to light in the more routine monitoring of project progress, or where there is seen to be a benefit of group training in a particular tool or approach requiring further clarification.

- will provide a Quality Assurance check at key stages in the project lifecycle such as the project plan, stage review and post project review.

- will act on requests from ISDMT (or the project board) to work with the PM to address any concerns or issues about the management of the project raised following board meetings or review of project highlight reports.

Contact the ISD Project Manager as follows:

Telephone: 01603 592248
Email: p.hooper@uea.ac.uk

A. Glossary

Activity	A summation of tasks
Aim	Enlarges on the rationale in setting out why the project is needed, and draws together the objectives into a single overarching ambition. The aim can be described as a goal; something to strive towards.
Closure	The means of shutting the project down, including, where relevant, setting up the transition to day to day service provision.
Consideration	A means of drawing attention to the thinking/decision making/negotiating/influencing that the Project Manager will encounter when carrying out a stage of work.
Constraints	Restrictions or limitations on the scope of the project. They may include, for example, the maximum budget available, or a fixed date by which the project must be completed.
CUBS	Central Units Budget Sub-committee
Customer	See User / Senior User
ISSC	Information Systems Strategy Committee
Deliverable	Tangible output from a piece of work.
Dependency	There are four types of dependency, the most common being the finish-to-start dependency, where one task cannot start until another task finishes. Others are: • Finish-to-finish dependency, in which one task cannot finish until another task finishes; • Start-to-start dependency, in which one task cannot start until another task starts; • Start-to-finish dependency, in which one task cannot finish until another task starts.
ET	Executive Team – consists of Vice-Chancellor, the Pro Vice-Chancellors, the four Deans of Faculty and the Registrar & Secretary,
Gantt chart	Gantt bars graphically display task durations and start and finish dates on a timescale. The relative position of the Gantt bars shows the sequence in which project tasks are scheduled to occur.
ICT	Information and Communications Technology
Interface	The points where a project has a relationship with another piece of work being undertaken, or one likely to be affected by the project.
ISD	Information Services Directorate, incorporating Library, ITCS, Print Services
ISDMT	ISD Management Team
ISSC	Information Strategy and Services Committee
Issue	Events that have occurred already and are impeding further progress, so that they need escalating and resolving.
ITCS	IT and Computing Service
Milestone	Especially significant dates in the project.
Objective	The expected tangible results of having completed the project.
PID	Project Initiation Document – subsumed in this methodology within

	the Project Plan.
Portfolio	Portfolio managment is the sel;ection and management of all an organisations projects, programmes, and related business as usual activities taking into account resource constraints.
PPR	Post project review – part of the project closure process.
Programme	Programme Management is the co-ordinated management of related projects, which may include related business as usual activities that together achieve a beneficial change of a strategic nature for an organisation. Programmes are outcome driven, to deliver benefits whereas projects are output driven to deliver products.
Project	A project exists to accomplish specific tasks which sit apart from daily activities and therefore, by definition, must have a clear beginning and end.
Project Board	Represents the business, client (Users) and supplpier at the managerial level. They own the project and are composed of the Project Sponsor, Senior User and Senior Supplier.
Project Plan	This is taken to be the document created at the start of the project and approved by the Board, setting out the project's objectives, deliverables, timescales, approach, constraints and risks. It will include a schedule.
Project Proposal	Is a brief outline specifying the objectives of a project, technical approach andm benefits (outcomes) of the proposed peicee of work. This allows the ISD Management team to assess if the project is sufficiently important enough to justify the money, time and resource needed to complete the work. Asses if the project is well defined and relaistic and the approach ois appropriate. This paper wil lbe used to decide if project management methodology should be used, if the business as usual team should add to their programme of work or if the work should be arcived or rejected. If accepted as a project a full project plan should be constructed.
Rationale	The reason why we're doing the project – a briefer summation of the Aim.
Risk	Foreseen potential problems, highlighted in the Risk Log.
Schedule	To show tasks, activities, milestones, resources, timescales.
Senior User	The senior user is the person representing the users at a senior level. They will sit on the project board to provide direction and advice on the needs of the users.
SLA	Service Level Agreement
Sponsor	Is responsible for promoting the project and acting as its "champion" in the senior ranks of the University. The project sponsor is the primary risk taker who is accountable to the University. Project sponsorship is an active senior management role, responsible for identifying the business need, problem or opportunity. The sponsor owns the business case, ensures the project remains a viable proposition providing value for money, ensures benefits are identified and realised, and resolves any issues outside the control

	of the project manager.
Stakeholder	Anyone who has a legitimate interest in the outputs of the project. This could be the Vice Chancellor, or students as end-users of a service, or staff as providers of the service.
Task	Has associated deliverable. Described as a verb. Has resources and timescales allocated to it.
User	The group of people who are to benefit from the project. They assist with specifying the requirements, testing products, involved in acceptance and use of the products when operational. Also see Senior User.
Work Stage	A distinct unit for management purposes, and like the project itself, has a defined set of products and activities, a finite life-span, control elements, and an organisational structure. Has own plan and reports. Need not run consecutively – more than one stage can be happening at the same time.

B. Other Documents and Templates

A copy of all templates, guidance and this handbook can be found in the "Projects" folder within the ISD Share. Alternatively visit https://intranet.uea.ac.uk/is/isdpow/isdpmh.

Doc #	Template Name	Template	Guidance	Location
1	Project Proposal	✓	✓	https://intranet.uea.ac.uk/is/isdpow/01-Project-Proposal
2	Business Case	✓	✓	https://intranet.uea.ac.uk/is/isdpow/02-Business-Case-Template
3	Project Plan	✓	✓	https://intranet.uea.ac.uk/is/isdpow/03-Project-Plan
4	Stage Review	✓	✓	https://intranet.uea.ac.uk/is/isdpow/04-Stage-Review
5	Change Log	✓	✓	https://intranet.uea.ac.uk/is/isdpow/05-change-log-template
6	Action / Issue / Risk Log	✓	✗	https://intranet.uea.ac.uk/is/isdpow/06-IAR-Log.xlsx
7	Budget Spreadsheet	✓	✗	https://intranet.uea.ac.uk/is/isdpow/07-Budget
8	Highlight Report	✓	✗	https://intranet.uea.ac.uk/is/isdpow/08-Highlight-Report
9	Post Project Review	✓	✗	https://intranet.uea.ac.uk/is/isdpow/09-Post-Project-Review