Methodology of change management

The need for change in the organisation has forced a more strategic approach, and below are the considerations for which approach to use.

Within an ICT infrastructure there are many policies and frameworks that can be followed to successfully design, manage, deploy and maintain that infrastructure. The way of carrying out these is defined as a methodology

ITIL (IT Infrastructure Library) is an ICT management framework made of many parts and is a project maintained by the OGC (office of government compliance). One of the major parts of ITIL is change management as it is a crucial part of IT Service Management (ITSM).

ITIL can be modelled as shown in Table 1.

Phase	Discipline	Description
Setting Objectives	Service level management	Identify, negotiate, and agree to services to be provided, quality measurement and IT performance targets to be provided to users.
Planning	Application & System Design	Plan and design IT infrastructure to meet Service levels committed to user.
	Capacity Planning	Plan for systems growth requirements
	Configuration Management	Create and maintain systems configuration information
	Asset management	Create and maintain asset inventory; track and monitor such use of assets
Execution	Incident Management	Detect, record, resolve problems
	Backup and recovery	Design alternative systems and resources to immediately restore IT services when problems occur.
Measurement	Performance Management	Monitor system performance data; tune system for optimal achievement of service levels committed to users.
Control	Change Management	Control all changes to the system to ensure that change does not degrade system performance
	Security Management	Control and administer access to the system to minimize threats to system integrity
	Availability Management	Monitor and control system resources and IT operation to maintain system availability
	Problem Management	Monitor and control system Known Errors and proactively remove them from the environment
	Financial Management	Monitor and control system IT expenditures

Table 1 High Availability", Design, Techniques and Processes, Floyd Pidad, Michael Hawkins, Enterprise Computing Series, Prentice-Hall, 2001

The purpose of change management is for:

- Minimal disruption of services
- Reduction in back-out activities
- Economic utilisation of resources involved in the change

This means that any changes made must have little impact on the business processes but benefit the organisation in the long run.

When developing a system such as the one for this project, there are 2 methodologies commonly used, these are:

- Waterfall Methodology
- Spiral Methodology

Waterfall Methodology

Waterfall Methodology was developed by Royce in the late 197os, the waterfall name refers to its sequential flow in a top-down fashion.

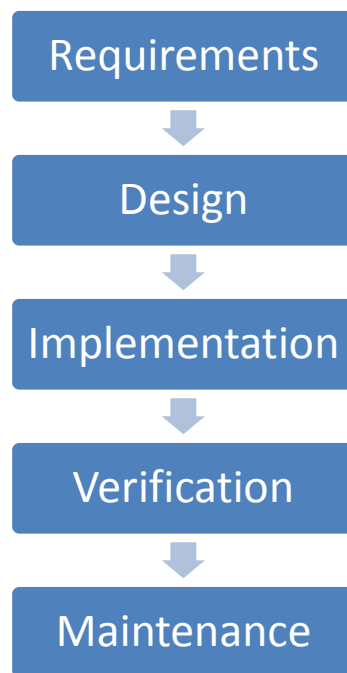The stages of waterfall are illustrated in Figure 1, below.

Figure 1 Waterfall Methodology

The stages are explained in Table 2, below.

Table 2 Waterfall Stage Explanation

Stage	Description
Requirements	This stage explains why the project was created and the reason for requirement of the project by identifying the problem and a possible solution.
Design	In this stage the requirements identified in the previous stage are used to create a design plan that meets the identified requirements.
Implementation (prototype)	At this stage the created design from the previous stage is created (implemented). The

	implementation stage is usually the most time consuming.
Verification	**In this stage the implemented project is verified by identifying whether the implementation was successful usually by testing if it was unsuccessful the project goes back to the design or implementation stage.**
Maintenance	**At this stage the system has been successful verified and is maintained and monitored to ensure that it works correctly without issues.**

Spiral Methodology

Spiral methodology is a slightly later development at 1986, and was developed by Boehm. This method is an extension of waterfall as it introduces a prototyping stage, allowing the stages to spiral. This means the waterfall stages can be repeated until the desired result is achieved. Spiral methodology is used for more complex enterprise level projects and is traditionally more time consuming than the waterfall model.
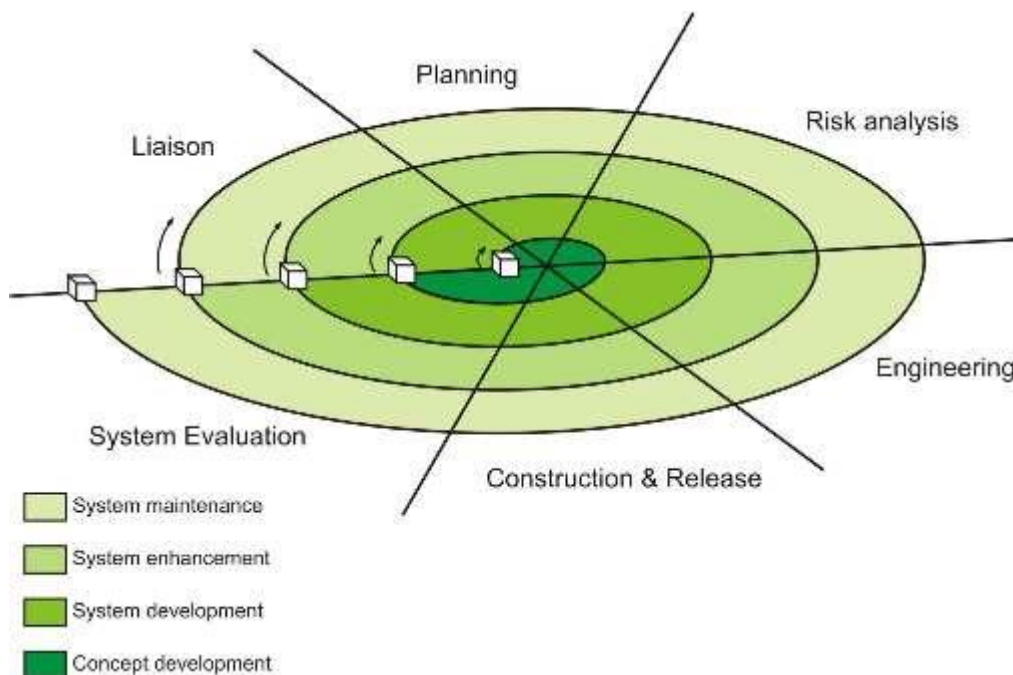
Figure 2 Spiral Methodology (source: http://usep-ic.forumsmotions.com/t210-assignment-4-due-may-10-2010)

Other Methodologies

Software Development Lifecycle

The software development lifecycle (SDLC) is a circular methodology commonly used by software developers in large and small development projects. It starts with the initial idea, but before the design is done, as in waterfall, a feasibility study is performed which tests how possible the solution is before any design time is wasted. Analysis of the requirements and systems is essential for a specification to be written before any design is performed. The SDLC includes a test and review phase which can in itself be a smaller circle within the main loop.

This methodology is relevant as although the name suggests a specific link to software development, there is a license to adapt this to a system development lifecycle. System could be defined as any technical based business process, in this case the development of a virtualised lab solution, utilising hardware and software.
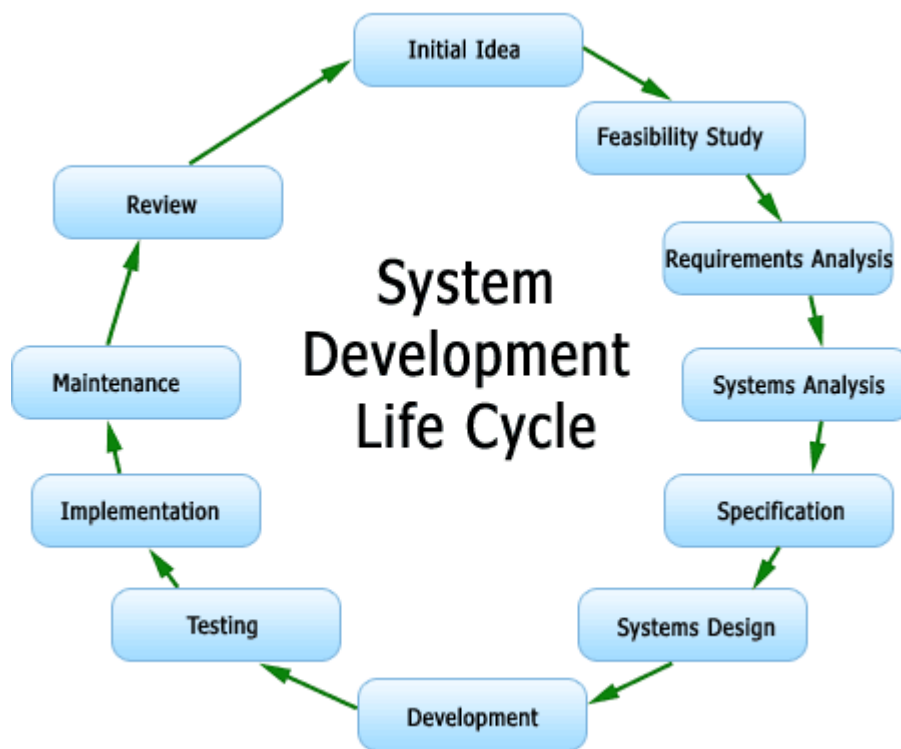

Figure 3 Software Development Life Cycle (source: http://www.sameeradilhan.com/what-is-system-development-life-cycle-sldc)

Rapid Application Development (RAD)

This is a form of spiral methodology which includes "rapid prototyping" and is focussed on the development of applications rather than systems. Rapid prototyping is where at the inner spiral (concept development stage) lots of small working models are used to demonstrate features of the end product, but they do not necessarily work with each other, it's within the System Development stage that these independent modules begin to form the overall solution.

Decision

This project will utilise the waterfall model, but there will be an inclusion of a prototype, due to time constraints this prototype will more than likely act as the final solution with perhaps a few minor tweaks after the evaluation phase. In an ideal situation the spiral method would better suit this project if it was on a larger scale with more scope; this is because of its nature where you keep advancing on each version.