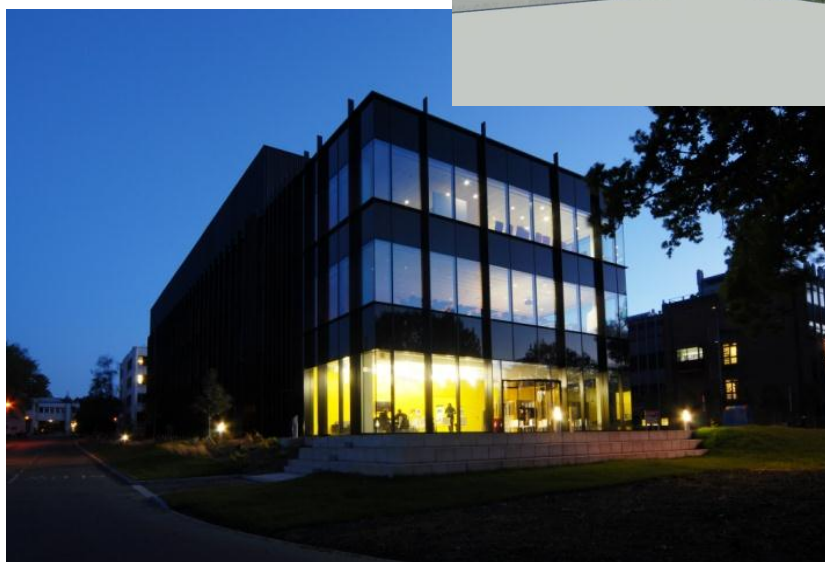


Project Guidance Note for Sponsors and Users

Capital Projects



Document Approval

Originator	Approved for Issue	Authorised for Issue
<i>Signature</i>	<i>Signature</i>	<i>Signature</i>
Name: M R Evans	Name: J Pich	Name:
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1 Purpose

This document is aimed specifically at the Project Sponsor (sometimes referred to as Senior User) and Users, who may also be collectively referred to as Customer. It presents a brief overview of the capital project process for large projects (>£1m) and outlines their roles and responsibilities within a project.

The Project Sponsor and Users are a vital part of the project process and the Project Team want to work with you to deliver a successful project and we hope that this document will give you an insight of what your roles will be.

Even though the document has been prepared with large projects in mind, which tend to have separate sponsors and users, the roles and responsibilities described in this report would apply equally to smaller projects although the scale would obviously be correspondingly reduced and even the sponsor and user roles may merge.

It is important that Project Sponsors appreciate the amount of time that they need to commit to a project and that it is not underestimated, especially during the early stages. To help give an understanding of this commitment, Professor Lib Taylor, Project Sponsor for the Film Theatre and Television Building, summarised below her involvement in the project during the period from Feasibility stage through the Design stage and into the start of construction.

“In the early stages of FT&T whilst we were preparing the business case it was not uncommon for me to spend 7 hours in a week over many months, sometimes with a Project Manager, providing information on what we currently have in terms of space and what we needed in the new facility.

As the project progressed through Feasibility and Design stage I found myself spending approximately 6 hours/week dealing with emails and telephone call in addition to attendance at the monthly committee meetings and monthly design team meetings that could last up to 3 to 4 hours. On top of that I visited new facilities in similar universities with colleagues and with architects to gather ideas and benefit from their experiences. I also visited professional theatre facilities and manufacturers to determine solutions to specific problems. I would be asked to review and approve designs to confirm that they met my requirements as customer and I could have sometimes as many as 15 drawings to look at, followed by consultation with other users. This could take 8 hours. My input on such matters was also time constrained and often I had to give a reply within a week, or at best two weeks. In addition, with the help of Project Managers, I have produced room data sheets, which detail requirements for each space in the new building, and a very detailed Furniture, Fixtures and Equipment (FFE) list which comprised 39 Excel sheets of furnishings, fixtures and equipment (new and existing) for the entire building. This information has been reviewed several times and now construction has started my time involvement has reduced to monthly committee meetings and monthly construction site meetings which all together in total takes about 5 hours a week of my time.”

2 Introduction

The University has a structured approach to delivering projects in stages and these are summarised in Figure 1 below.

Figure 1 – Capital Project Delivery Stages

Governance						
Pre-feasibility	Feasibility		Project			Post-project
<u>Pre-feasibility</u>	<u>Stage 0</u> Start-up	<u>Stage 1</u> Concept design	<u>Stage 2</u> Scheme design	<u>Stage 3</u> DD T&C	<u>Stage 4</u> Construction	<u>Stage 5</u> Project closure
Identify the need for a project	Initiate feasibility	Define the concept	Commence project & complete scheme design	Detailed design, tender & contract	Construct, commission & hand over	Defects liability period & project closure

The involvement and contribution of the Project Sponsor and Users will vary throughout the stages and this document helps to understand the role and commitment required. A summary of roles of the core project team is shown in Appendix A and a glossary of terms often encountered in a project is given in Appendix C.

3 Customer Roles

The two main roles that the customer will provide are that of Project Sponsor (sometimes referred to as Senior User) and Users. These are explained further in Sections 3.1 and 3.2 below and they will have their own responsibilities and accountabilities.

It is worth mentioning here that Users are not limited to building occupants and the project team will still need to consider other users, such as Central Room Bookings, who don't come under the responsibility of the Sponsor but with whom the project team will still need to interface with.

To illustrate diagrammatically how the responsibilities and accountabilities of the Sponsor and User fit within those of other project stakeholders, a sample RACI (Responsibility, Accountability, Consultation, Informing) matrix is shown in Figure 2. This RACI matrix would vary for each project and is intended to give an idea of the roles and responsibilities of Sponsor and User within a typical project.

One of the factors for a successful project is the committed involvement of the Sponsor and Users in the project from specifying requirements at the early stage

right through to involvement in the handover and post occupancy matters. Some other factors that make a successful project are listed in Section 5.

Figure 2 – Sample RACI Matrix

Activity	Project Governance (Committee)	Sponsor	Key Users	SC of Teaching & Learning	Central Room Bookings	Support Services Manager (Campus Services)	Campus Services	Disability Advisory Group	Space Management	Project Team	Maintenance	H&SS	Security	ITS
Project end stage reports	A	A	I	-	-	-	-	-	-	R	-	-	-	-
Prepare Business Case	A	R	C	-	-	-	-	-	-	C	-	-	-	-
Specify functional, operational and security requirements	C	A	R	-	-	-	-	-	I	C	I	C	-	I
Disability requirements	I	I	I	-	-	-	-	C	-	R,A	I	C	-	-
Teaching and learning room requirements	-	C	C	A	-	-	-	-	C	R	I	-	-	C
Centrally bookable room requirements	-	I	I	C	A	C	-	-	C	R	I	-	-	C
Specify requirements of specialist process systems	I	A	R	-	-	-	-	-	C	C	I	-	-	I
Identify business critical equipment	I	A	R	-	-	-	-	-	C	I	I	-	-	I
Project Design & Specification	A	C	C	-	-	-	C ⁽²⁾	C ⁽²⁾	-	R	C	C	-	C
Fire Alarms Design & Specification	-	I	I	-	-	-	-	-	-	R,A	C	C	I	I
Security Design & Specification	-	C	C	-	-	-	-	-	-	R,A	C	I	C	C
AV/IT/Comms Design & Specification	-	C	C	-	-	-	-	-	-	R,A	C	-	-	C
Furniture requirements	-	C	A	C ⁽¹⁾	C ⁽¹⁾	C ⁽¹⁾	-	-	-	R	I	I	-	-
Cost and schedule changes ⁽³⁾	A	C	I	-	-	-	-	-	-	R	-	-	-	-

R- Responsibility for getting work done and for driving the group to make decisions in a timely manner
A- Accountability - Final approval on accepting outcome
C- Consult for acceptance of design or specification in meeting requirements prior to decisions
I - Inform after decision made. Wants to stay up to date on progress

Note

⁽¹⁾ For Centrally bookable areas.
⁽²⁾ Consultation with Campus Services would relate to material requiring on going cleaning
⁽³⁾ During any change control the appropriate stakeholder must be consulted when carrying out the impact analysis

These stakeholder engagement details are to be refined on a project by project basis

3.1 Project Sponsor

The Project Sponsor, sometimes referred to as the Senior User, is the person who wants the benefits of the project. At the University, the Project Sponsor is most likely to be a senior academic. The Project Sponsor will have to dedicate time to the project and this will be more in the early stages where the project brief and design is being developed and when the Sponsor feeds their requirements into the project.

The Sponsor can also make a financial contribution to the project from the reserves of their own unit (Department, School or Directorate), with committee approval, to assist with say the purchase of specialist equipment.

If Key Users are to be invited to contribute to project team meetings as well as to attend the Feasibility Group and Project Committees, either in the capacity as member or “right of attendance”, the Project Sponsor will be expected to name these individuals and to confirm what their role will be. For example, if there were a particular academic who was to specify the department’s requirement for a laboratory then this needs to be made clear to the Project Team who will then only receive instruction from this academic to develop the brief for this aspect of the project.

The main duties of the Sponsor will be:

- Provide the key operational information necessary for the development of the initial Business Case justifying why the project is required;

- Define the success criteria;
- Sign off at key stages, along with committee members;
- Specify functional requirements to ensure that the space will look and function as they and their department need;
- Contribute to the change control process where this involves a change in scope;
- Represent views of their department staff;
- Be expected to attend all project team meetings;
- Feedback information on the project and its progress to their department;
- Ensure measures are in place to manage non-building related changes (this is not the responsibility of the project);
- Be a member of the Feasibility Group and Project Committee, which are the governing bodies where all decisions are taken and will need to attend these on a monthly basis;
- Mediate if the project team get conflicting messages from the Users and will at times need to act as a “filter” to make sure the correct and non-conflicting message is being passed to the project team;
- Nominate a contact within their team who can liaise with the Project Team at handover and beyond to deal with snagging and defect issues. Even though this will be the end of Stage 4 and through Stage 5 it helps to start thinking about this early on;
- Determine the relative priority of Time, Cost and Quality. All projects need to balance three key elements of time, cost and quality. The Project Sponsor will be expected to determine which of these is vital. For example, if quality cannot be compromised the project team will essentially have time and cost to manipulate to bring a project into budget, if that is what is required. If cost were the main constraint the project team would look at quality and programme as ways of bringing a project in within budget and the Project Sponsor may have to forgo some quality in order to achieve the project within cost;
- The Project Sponsor is urged to keep in good contact with the Project Manager and inform them of any anxieties they may have about the project.
- Be prepared to discuss issues that may arise with academic neighbours who can be affected by the project, such as noise and general inconvenience, but who will not benefit from the project. The Project Manager normally manages interfaces with neighbours but in certain instances it can be helpful if the Sponsor contributes to dialogue with academic colleagues.

3.2 Users

For the purpose of this document, Users are generally the people who will benefit from the project and who will occupy the new or refurbished space and who

come under the responsibility of the Sponsor. They are accountable for specifying functional and operational requirements and for accepting the deliverables at the end of the project.

As previously mentioned, the project team will still need to interface with other users, such as Central Room Bookings, and the Sponsor needs to be aware of this extra interface that the project needs to manage.

To avoid the project team discussing with multiple users and getting conflicting messages they are usually represented by key users or just the Project Sponsor. It is not uncommon for key users to attend the project team meetings and also be members of, or have rights of attendance, to the Feasibility Group and Project Committee Meetings.

The person who defines the requirements and works with the Project Team to develop the brief and the design is the person who is to confirm at handover that the deliverables satisfy the original requirements.

The main duties of the User(s) will be:

- Identify project requirements;
- Identify any project constraints;
- Accept the Project Sponsor's project authority;
- Assist the Project Team at handover;
- Accept the project at handover;
- Inform the Project Team of any operational changes;
- Commit time to the project.

4 User Responsibilities Post Project Completion

In addition to the duties summarised in Sections 3.1 and 3.2 above, it is worth summarising other duties that the Sponsor and Users would be expected to deal with when the project is handed over:

- Consider staffing needs;
- Appoint a Building Manager and Fire Warden, if not the same as the Building Manager;
- Set up maintenance contracts for department-specific equipment.

Estates and Facilities look after the building infrastructure requirement, such as HVAC (Heating Ventilation and Air Conditioning) and lifts, but they will not maintain user equipment, such as laboratory equipment.

For larger user equipment the project can include the first year's maintenance contract within the budget, subject to committee approval, but after the first year's operation the User department will need to make financial provision. To avoid doubt, it is important to confirm during the feasibility stage, or

before project budgets are set, about the requirement for including the first year's maintenance for Users' equipment in the project;

- Arrange cleaning with Campus Services;
- Arrange building security with Campus Services– who locks up and when;
- Timetable amendments that may be required because of changes in, for example, location on campus, room allocation, use of centrally bookable spaces.

5 What Makes a Successful Project

It is worth listing here some of the aspects that help to achieve a successful project:

- Well-defined business case;
- Good communication between the Project Sponsor and the Project Managers;
- Realistic programme and budget;
- Adequate time given to planning and design work;
- Well defined project delivery process;
- Feasibility study completed with sufficient definition to allow a realistic budget and programme to be defined;
- Commitment by the Sponsor and Users to the project;
- Good relationship between Sponsor, Users and the Project Team;
- Good communication, in both directions, amongst all parties;
- Well defined project stakeholder communication plan;
- No scope creep;
- Good risk identification and management;
- Good change control management;
- Well defined procurement strategy;

6 Capital Project Process

The University's Capital Project Process is web based and access to it is via a portal. It does require a University username and authorisation from the Estate and Facilities to access the portal. The web link is given below for convenience:

http://www.fmd.reading.ac.uk/For_University_staff/Portals/Projects/CPM/index.asp

Our process lists the deliverables that are required at each stage but it must be recognised that deliverables can vary from project to project and not all are required. The Capital Project Process also includes procedures for such things as

change control, post occupancy evaluations, hand over procedures to maintenance.

All well run projects are broken down into stages as shown in Figure 1. There are three very good reasons for this. Firstly it is not possible to plan a project in sufficient detail at the outset due to the fact that there are simply too many unknown factors, such as a detailed understanding of what is required to be delivered. Secondly, breaking the job down into manageable chunks means that the Project Team do not progress too far down a particular path only to find that the scheme is unaffordable or does not meet the Project Sponsor's functional requirements. Thirdly, it enables the project to be checked regularly against the Business Case to ensure that it is still viable.

For smaller, less complex schemes it is not uncommon to combine stages and this will be decided at the outset by the Project Manager, with approval from the governance.

At the end of each stage an End Stage Report will be presented to the Project Sponsor who will need to review it thoroughly and feed back comments to the Project Manager in terms of things that have been erroneously omitted, issues that have not been correctly recorded or something that is felt no longer relevant and needs to be changed.

In addition, an aspect of sign-off is that the 'health' of the project is reviewed. So, for example, the cost consultant will update the cost estimate based upon the latest information to check that the project remains within budget. Similarly the Project Manager and Contractor will review the information and check the master programme to ensure that the project is still on target to meet the agreed completion date.

Once the review is complete and all comments fed back to the Project Manager, the Chair of the Feasibility Group, or Project Committee, will give formal approval to proceed to the next stage, assuming that the End Stage Report shows the project to be on programme and within budget. The project can then enter the next stage, which will have a defined completion date.

Changes made after sign-off points are likely to generate additional cost or delays as the process would have moved on. A very important sign-off is the end of Stage 3 where complete sets of drawings will have been prepared along with the specifications describing materials, finishes, showing positions of fume cupboards/safety cabinets, laboratory furniture layouts, office furniture layouts etc. **After this point, there is no scope to make changes.**

6.1 Feasibility Stage

This is split into

- Pre-feasibility
- Stage 0 and Stage 1 - Feasibility

6.1.1 Pre-Feasibility

The Pre-Feasibility stage is the first stage in the project process and looks at the information required to support the Business Case and helps identify, in broad terms, the scope, objectives, constraints and interfaces, all of which will be used to update the initial Business Case. It is also used to set an initial budget allocation and identify the preferred option, or options, to be pursued in more detail through the Feasibility stage, where consultants' costs can start to become significant. The output will enable the necessary consultants to be procured to carry out the feasibility study to completion.

The Project Sponsor will lead the users in inputting their own requirements into the project and will guide the team on how they want the space to look and function.

It is worth at this point to touch on one of the most significant elements that lead to project failure, - CHANGE. Making changes to the scope during the latter stage of a project (detailed design, and worse, construction) can be cited as one of the main contributors to project failure. Therefore it is important that the big decisions are made early in the process where their influence is high but the expenditure at the time will be low. It is worth remembering that the decision taken can still have a large impact on the final out turn cost of the project. During the early stages of a project the Project Team has the greatest influence over shaping the outcome of the project in terms of meeting the budgetary and time constraints. There is also a resource commitment in even assessing the impact of change which can cost money even if the change is not implemented. Part of our Capital Project Process contains the procedure we use for managing change.

6.1.2 Feasibility Stage

The Feasibility stage is split in to two stages as shown in Figure 1 - Capital Project Delivery Stages. They are governed by the Feasibility Group, chaired by the Deputy Vice Chancellor.

At the beginning of the Feasibility the Project Manager will arrange a workshop to get the stakeholders together to run through the project and explain the process. It also allows the Users and Sponsor to meet the team and also allows the Sponsor to present the business side of the project to give the project team an understanding of why we are doing the project.

Stage 0 is the first stage of Feasibility and is where the project team will develop a Project Brief, described in more detail in Section 6.1.2.1 below, based on the Business Case and user requirements. The team could produce a few options depending on the size of the project and at the end of Stage 0 the various options will be presented to the Feasibility Group and the preferred option is then taken to conclusion of Feasibility. The selection of the preferred option will be based on assessing the fundamental elements of cost, quality and programme.

Stage 1 will complete the feasibility study where the preferred option will be defined in sufficient detail (design, cost, programme and risks) to allow the

Feasibility Group to approve the scheme for submission to the Senior Management Board (SMB) for recommendation to the Strategy and Finance Committee (S&FC) that the scheme becomes a project with the establishment of a formal Project Committee. The project budget is set at this point.

The Project Sponsor will need to sign the End Stage Report as well as a “Synopsis of Project Case”. By signing these documents the Sponsor is not accepting any design responsibility from the consultants but is signing to say that he/she and their team confirm that the project and the programme meets their requirements.

The Business Case will also be updated at the end of the feasibility study and submitted along with the other SMB papers for approval.

6.1.2.1 Developing the Brief

The project brief is a technical response to the Business Case that is then used as a basis to develop the detailed design. Briefing and design are iterative processes, which means as the project brief evolves the Architect will start to translate the brief into sketches which will eventually be upgraded into detailed plans and specifications.

The project brief captures all the necessary information, the wider vision and the specific activities and operational requirements, as well as the desired image, atmosphere and quality, and criteria for site selection where appropriate. It should not, however, seek to prescribe how to meet the Project Sponsor’s objectives – that is what the design team does.

The brief may start as a simple general statement of the project objectives. It should incorporate the views of all the key stakeholders, including the future users of the building. It should deal not only with the spaces that will be needed for the intended use but also the looks, style, durability and other characteristics of the materials, details and systems to be used. The effect of potential future organisational changes must also be considered. Creating a brief is an iterative process that may go to and fro a number of times. The Architect will probe and question the brief to find the best answer to the Project Sponsor’s needs.

Background material in the brief needs to be clearly organised to support important information about the identified needs. The Project Sponsor is responsible for seeing that the brief describes unambiguously and clearly what the project is to accomplish. It should be reviewed to ensure it says what is intended and should be signed off.

Once the project brief is completed all of the project’s requirements should be specified clearly, vague statements are not helpful. Many people will be involved in explaining what is required and a lot of data may need to be collected. The Project Sponsor can create a group of specialists (fellow academics, technicians etc) who could take responsibility for certain areas and functions proposed within the new facility. Something that the Project Sponsor should be mindful of is the impact that a yet to be appointed member of staff could have on the project programme if that person is going to be relied upon to specify their requirements

for say a new research laboratory. In addition, it is important for there to be a clear distinction between ‘wants’ and ‘needs’, as the design team will then know which things are non-negotiable, which are desirable but not essential and will understand what added features or qualities would enhance the project for the Project Sponsor.

6.1.2.2 Room Data Sheets

Part of the brief development is the establishment of room data sheets. A typical template is shown in Appendix B. These are a detailed description of requirements room by room and should be completed by the project team with input from the person(s) specifying the requirements for the new facility, which will normally be the Project Sponsor or a User. This is important to recognise because some criteria need explaining by the various specialists. For example, we would not expect the Sponsor to specify the number of air changes per hour in a room but would expect them to say what activity is to take place in a room which would then allow the appropriate consultant to specify the number of air changes per hour.

Room data sheets are important documents in several ways:

- The consultants will extract information from these to develop their designs and specifications;
- Some contractors use them during the construction process;
- If there were a dispute between the University and Consultants over something that may have been excluded from the project the first recourse will be the room data sheets.

Because of the importance of the room data sheets, the Sponsor will be expected to sign off each room data sheet.

It is not unusual for room data sheets to develop further during the stage 2 and 3 design phases.

6.2 Project Stage

The project stage is split into the following stages:

- Stage 2 - Scheme design
- Stage 3 – Detailed Design, tender and contract.
- Stage 4 – Construction, testing and commissioning

The Project is governed by the Project Committee, chaired by usually the Deputy Vice Chancellor or for certain schemes the Vice Chancellor.

6.2.1 Stage 2 – Scheme Design

Stage 2 is the first stage of the "Project" phase which is used to develop the option into a refined Scheme Design by the project team.

This now starts to add the detail to the scheme and it becomes more important to resist change. The budget has been set now and any change to the scope of the project risks increasing this budget and therefore could jeopardise the project.

It is not uncommon during this Scheme Design stage that we start to see the forecast completion cost begin to rise. What happens therefore is that near the end of the stage there will be a value engineering exercise (called VE) where we look at the function of the building, materials of construction and construction methods to see what elements we could change to optimise functionality in relation to the Business Case that can return a cost saving. The project team would initiate this VE workshop but the Sponsor and Users have to have a major input into it.

It is best to view this VE workshop not simply as a cost cutting exercise but a way to review aspects that can be removed, or reduced in cost, whilst maintaining the business objectives and maintainability of the building.

At the end of this stage there would be a presentation to all project stakeholders, everyone who has an interest in the project, and the Project Sponsor and Key Users would be expected to attend.

6.2.2 Stage 3 - Detailed Design, Tender and Contract.

This is the stage of the project when the Project Team will finalise the design package with fully detailed drawings, specifications and schedules etc. Tender documentation will be produced around these documents, and utilising the selected method of procurement, competitive prices are sourced from Framework Contractors to deliver the construction stage of the Project.

The Committee will require 85% cost certainty before it will authorise the appointment of the Principal Contractor to continue with Stage 4, Construction.

As with stage 2, there would be a presentation of the final scheme to all the project stakeholders at the end of the stage.

6.2.3 Stage 4 - Construction

This is the stage of the project when Construction, Commissioning and Handover takes place. Principally this is the stage of the project when the end product is delivered through on site activity.

Everyone should avoid introducing new ideas and demands for the building during construction, even when it is clear that some items could be improved. Even small changes at this stage are likely to lead to damaging increases in costs and /or the length of the programme. Most changes are much easier and cheaper to implement after the project is complete. Changes should only be agreed if absolutely necessary and the cost and time implications are fully understood. All changes must go through the change control process.

By the time construction starts, the Project Sponsor would have made all the big decisions and so the demands of the project on his or her time will reduce

considerably. However, site visits are an important way for the Project Sponsor to keep in touch with the progress of the project. When arranging a site visit it is important that the following points are borne in mind:

- The Project Manager should be the first point of contact in order to arrange a site visit;
- For the duration of the building contract the contractor is in possession of the site. Permission must be sought from the contractor before entering the site;
- Appropriate personal protective equipment (PPE) will be required that will be loaned by the project to visitors;
- The Project Sponsor should not be left to walk around the site unaccompanied. All site visits must be accompanied by the Contractor's site agent.

Monthly Project Committee meetings will continue to be held and the Project Sponsor's attendance will be required.

Towards the end of Construction, the project team will start to look to handover and within our Capital Project Process we have a rigorous process to follow to ensure that the project is handed over to our maintenance colleagues in the Estates and Facilities in a controlled manner to ensure that they have the proper documentation and certification to operate and maintain the building.

Following a satisfactory project handover to Estates and Facilities, we say the project has achieved Practical Completion. It is at this point that the University can start to occupy the building so that the Project Team can complete fit-out of fixtures, fittings and equipment (FF&E) that were not part of the main contract. This is usually things like loose furniture, IT and AV (audio visual) equipment. Completion of the FF&E installation marks the point when the building can be handed over to the Users as a usable building.

The people who defined the requirements and worked with the Project Team to develop the brief and the design in the early stages will be the people who will be best placed to confirm at handover that the deliverables are correct.

We must ensure that we differentiate between what was omitted and what was not as anticipated or where what was delivered does not give the results that the users had expected. If the Project has delivered what was designed and specified then any change to that will require the user to raise a change control request and justify the reason for the change request. For larger changes, or those to scope, they will require committee approval.

6.2.4 Stage 5 - Post Project

This is often referred to as the Defects Liability Period (see Appendix C Glossary) and is a period of usually twelve months following practical completion, during which the University can require the contractor to return to complete any omissions in the works and to make good any defective work or materials. During this period, it is beneficial if the department nominate a contact within

their team who can liaise with the Project Team to deal with snagging and defect issues.

When the new facility is handed over to the Project Sponsor systems such as the heating and ventilation will have been tested in the course of installation, often independently of each other, but not yet tried in normal use. As equipment starts to be used, the systems need balancing until they work as planned. It is only once the building has been occupied for all four seasons that complex heating and ventilation systems are fully tested. People running a building have to get used to the systems. A small simple building with domestic-scale systems will be up and running almost immediately, but for a complex building with innovative systems, it will take at least a year to complete commissioning and reach normal operations.

Fine-tuning and making good defects may involve disruption to activities in the buildings because of moving furniture, wet paint, temporary loss of power or water supply. Dates for carrying out remedial works would be agreed with the building users who will be affected and the contractor.

After the initial period of familiarisation, users should be asked to report back on how well the facility works and suggest any immediate improvements. The same group of users who helped give input in to the project as it was being conceived and designed will be asked to provide feedback on its operation. One person should be tasked to do a full building 'walkabout' regularly, say weekly, to report any problems to the Project Manager who will see that action is taken to resolve them. Students who are using the facility should be given an opportunity to report any issues, positive or negative.

During this stage and depending on the project, there will be a Post occupancy Evaluation (POE) focusing on three prime areas:

- **Process**
Looks at how the project was delivered and how decisions were arrived at.
- **Functional performance**
This will address how well the facility supports the University's objectives and how the users' requirements were met.
- **Technical performance**
This will look at how the physical systems perform, for example lighting, ventilation, energy use, acoustics etc.

It is beneficial that the building systems will have settled down and that there will have been a full seasonal cycle and it is therefore not uncommon for this POE to take place between 6 to 18 months after completion.

7 Business Case

Below are the typical headings, along with some explanatory text and some fictitious examples (in italics), indicating what is generally required in the preparation of the Business Case.

The Business Case is a joint effort with the Sponsor and project team and will be developed and reviewed at the end of each stage to make sure it is still valid. It will be the project team that will pull this document together.

1. Reason for the Project

Justification for the undertaking of a project based on the estimated cost of development and implementation against the risks and the anticipated business benefits to be gained. The total business change must be considered, which may be much wider than just the project development cost.

2. Options

Give a brief description of the options considered with an assessment and evaluation of each option, including reasons for rejection of options.

It is important not to provide the solution but rather the business requirements. The project team, along with input from the Sponsor and Users will develop the solution(s) to meet the business case.

3. Scope

Describe the scope of the project in terms of what is required. Again, avoid going to the solution. Let the project team develop that in conjunction with the Sponsor and Users.

4. Benefits

Describe the business benefits.

5. Risks

Identify risks known at this stage and what the countermeasures may be. The risk log would be updated throughout the project and the Project Manager will report on the progress of preventative actions to the Feasibility Group/Project Committee. It is worth presenting in the form below:

No	Description	Probability	Impact	Countermeasure(s) and contingent actions
1	<i>Planning permission not obtained if new building is required</i>	<i>High</i>	<i>High</i>	<i>Engage planners early in the Feasibility Stage.</i>
2	<i>Cancellation of a course if building not completed by dd/mmm/yy</i>	<i>Med</i>	<i>High</i>	<i>Prepare contingency for alternative location.</i>

6. Costs & Timescales

An initial high-level estimate (rough order of cost) with overall required timescale to completion is required. The project feasibility study would add future clarity to costs and timescales.

7. Investment Appraisal

This is where the financial benefits of doing the project are compared with the investment costs. The financial benefits being such things as income from third party users, increase in student numbers, research grants etc.

For some projects at the University this is neither evident nor appropriate especially if a project is as a result of a higher level strategic development where such appraisal may have already taken place. If this is the case, then ideally that information should be included.

The investment appraisal does need to be considered on a project by project basis to see if it is appropriate.

8. Assumptions

List assumptions made in providing information in the business case. For example:

- *There will be sufficient power available on the campus;*
- *There are adequate resources to do the project at the required time;*
- *The existing infrastructure is adequate in terms of capacity and condition;*
- *There is adequate existing parking on campus for contractors;*

9. Dependencies

List dependencies that are required by this project. For example:

- *This project is dependent on the completion of a sub-station being constructed by Project x;*
- *Planning permission is dependent on the replacement of a displaced car park;*
- *Provision of adequate power and data infrastructure.*
- *Planning permission to be granted for new building.*

10. Constraints

Identify the constraints that impact the project. For example:

- *There will be other construction activities that will need to be interfaced with in terms of construction management;*
- *The proposed location is bounded by trees;*
- *It is adjacent to know exam location;*

Appendix A Project Team Core Members

The core team members will be:

Project Manager – either an in-house appointment or appointed from the University’s Framework Agreement. The Project Manager is the Project Sponsor’s single point of contact and is the person responsible for delivering the project to the functional, time and budgetary constraints. It is important that a good working relationship is established with the Project Sponsor from the outset as there is a need to work together to define the requirements of the new facility in order to prepare the brief. The Project Sponsor is urged to keep in good contact with the Project Manager and inform them of any anxieties they may have about the project.

Architect (Normally design team leader) – appointed from the University’s Framework Agreement. The Architect will lead the process of defining the Project Sponsor’s requirements for the new facility and will produce the brief. The Architect is responsible for preparing and submitting the planning application and the building control application (building regulations) to the local authority.

Building Services Designer – appointed from the University’s Framework Agreement. Typically two separate roles fulfilled by two professionals – a mechanical engineer and an electrical engineer. The mechanical engineer will provide the specialist input needed to understand the functional use of the new space and its influence on the environmental conditions that must be achieved, which will in turn inform the need for heating, ventilation, air conditioning, humidity control, the requirement for fume cupboards or biological safety cabinets etc. The electrical engineer will typically specify the power and data requirements, design the lighting layout, specify the fire alarms etc.

Structural Engineer - appointed from the University’s Framework Agreement. The Structural Engineer will assist the architect in designing the new facility/specifying structural alterations to an existing facility.

CDM Co-ordinator - appointed from the University’s Framework Agreement. The University has a statutory obligation under the Health and Safety at Work Act to appoint a CDM Co-ordinator. This role is one of safety co-ordinator ensuring that designers are mindful of all aspects of safety in carrying out their design i.e. ensuring that the building contractor is not exposed to unnecessarily high levels of risk during the construction stage as a result of something designed into the project and also that the new facility can be safely maintained once occupied.

Principal Contractor - appointed from the University’s Framework Agreement. As well as being responsible for the traditional task of constructing/refurbishing to create the new facility the contractor is appointed at the start of the Project to assist with the planning and programming of the project as well as advising the designers on how the design can best influence ease of construction.

Appendix B

Room Data Sheet

Room Data Sheets			
Project:		Project Stage:	
Room Name/No:		Date:	
<u>1.0 Function</u>		<u>4.0 Waste</u>	
Time of Use:		Sink (No.):	
Typical Occupants:		Wash hand basin (No):	
Room Area:		Foul:	
Room Height:		Chemical:	
Classification/Containment:		Macerator:	
Design Noise Level:		Solid:	
Other/Special Requirements:		Other/Special Requirements	
<u>2.0 Room Description</u>		<u>5.0 Electrical</u>	
Door:		Lighting illuminance:	
External window:		occupancy control:	
Internal window:		luminaire type:	
Wall finish:		Switching normal:	
Floor finish:		dimming:	
Skirting:		two-way:	
Ceiling:		Small power sockets:	
Other/special requirements:		dado:	
		IP rating:	
<u>3.0 Environment</u>		Single Phase dedicated:	
Air Classification:		Three Phase dedicated:	
Air changes per hour:		Filtered:	
Relative pressure:		Standby:	
Filtration supply:		Uninterruptible:	
extract:		Data outlets:	
Ventilation:		Voice outlets:	
Scavenging:		PA:	
Fumigation:		Other/special requirements:	
Temperature winter:			
summer:			
Humidity winter:			
summer:			
Heat gain inhabitants:			
equipment			
Other/special requirements:			

Room Data Sheets			
Project:		Project Stage:	
Room Name/No:		Date:	
<u>7.0 Health & Safety</u>		<u>10.0 Utility Services</u>	
Detection	Heat:	Hot Water:	
	Infrared:	Cold Water:	
	Smoke:	Chilled Water:	
	Ultra Violet:	Purified Water:	
Protection	Inert gas:	Drinking Water:	
	Dry pipe:	Vacuum:	
Alarm	Audible:	Compressed Air:	
	Visible:	Nitrogen:	
Emergency	Eyewash:	Natural Gas:	
	Shower:	Other/special requirements	
Other/Special Requirements:		<u>11.0 Contract supply and fix furniture, fixtures fittings</u>	
<u>8.0 Security</u>			
Motion detection:			
CCTV:			
Access Controls			
Door Controls:			
Computer Loops:			
Other/special requirements			
<u>9.0 Specialist Extract (refer to equipment data sheet for details)</u>		<u>12.0 Client supply and contractor fix furniture, fixtures, fittings</u>	
Fume cupboard:			
Safety Cabinet:			
IVC:			
		Note: Refer to Equipment Data Sheets for new and existing equipment	

Appendix C Glossary

The list in Table 1 below is a convenient reference to some of the terms that will be mentioned within a project.

Table 1

Acceptance Criteria	A prioritised list of criteria that the final product(s) / deliverable(s) must meet before the customer will accept them.
Benefits	The positive outcomes, quantified or un-quantified, that a project is being undertaken to deliver, and that justifies the investment.
Business Case	Information that describes the justification for setting up and continuing a project. It provides the reasons (and answers the question “Why?”) for the project. It is updated at key points throughout the project.
Capital Projects Review	Capital Projects Review is the reporting forum prior to Project Committee for projects greater than £1m and is the opportunity for projects to be rigorously reviewed (cost, risk, time) and to give the Project Manager the opportunity to raise any issues with senior management. For projects less than £1m the Capital Projects Review takes on the role of project governance.
Change Control	The procedure to ensure that the processing of all Project Issues is controlled, including the submission, analysis and decision making.
Communication Plan	Describes how the project’s stakeholders and interested parties will be kept informed during the project.
Construction Contingency	This change is normally within the control of the project and does not require Committee approval. It requires approval from the correct authorities as indicated in the Change Order Request form.
Critical Path	This is the line connecting the start of a planning network with the final activity in that network through those activities with the smallest float. Often this is a line through the network connecting those activities with a zero float, i.e. those activities where any delay will delay the time of the entire network.
Customer (Client)	The person or group who commissioned the work and will benefit from the end results.

Defects Liability Period	<p>Defects Liability Period: the period commencing on the date that the Sub-Contract Works have achieved Practical Completion. It is a period of usually twelve months following practical completion, during which the employer can require the contractor to return to the site to complete any omissions in the works and to make good any defective work or materials. When all omissions and defects have been made good, the contract administrator will issue a certificate or statement of completion of making good defects.</p> <p>This period may be extended if the building fails to perform for a significant period or issue.</p>
Deliverable	<p>An item that the project has to create as part of the requirements. It may be part of the final outcome or an intermediate element on which one or more subsequent deliverables are dependent.</p>
End Project Report	<p>A report given by the Project Manager to the Project Committee, that confirms the handover of all products and provides an updated Business Case and an assessment of how well the project has done against its Project Initiation Document.</p>
End Stage Review/End Stage Report	<p>The review by the Project Committee and Project Manager of the End Stage Report to decide whether to approve the next Stage Plan.</p>
Feasibility Group Approval	<p>The formal authority from the Feasibility Group for the Project Manager to proceed or not to the next stage. It is also used to accept or reject Exception Plans.</p>
Feasibility Study	<p>A feasibility study is an early study of a problem to assess if a solution is feasible. The study will normally scope the problem, identify and explore a number of solutions and make a recommendation on what action to take. Part of the work in developing options is to calculate an outline Business Case for each as one aspect of comparison.</p>
Framework Agreement(s)	<p>Agreements between the University and various parties of the supply chain in the building process for the supply of services. Generally this includes pre-agreed competitively tendered rates.</p>
Issue Log	<p>A log of all Project Issues including requests for change raised during the project, showing details of each issue, its evaluation, what decisions about it have been made and its current status.</p>

Lessons Learned Report	A report that describes the lessons learned in undertaking the project and that includes statistics from the quality control of the project's management products. It is approved by the Project Committee and then held centrally for the benefit of future projects.
Practical Completion	<p>Practical completion is where construction work has deemed to reach completion by the Project Manager who issues the Practical Completion Certificate. All the necessary handover obligations will have been met by the Contractor at this point, with any outstanding issues being carried forward by joint agreement only and with a programme of close out.</p> <p>It also triggers the release of half of the retention monies to the contractor, where this was part of the contract, stops the contractor's insurance obligations under the contract; stops the contractor's liability for liquidated and ascertained damages; and starts the defects liability period.</p>
Post-Project Review /Post Occupancy Evaluation	One or more reviews held after project closure to determine if the expected benefits have been obtained. Also known as post-implementation review.
Project Brief	A description of what the project is to do; a refined and extended version of the Project Mandate, which has been agreed by the Project Committee and which is input to project initiation.
Project Committee Approval	The formal authority from the Project Committee for the Project Manager to proceed or not to the next stage. It is also used to accept or reject Exception Plans.
Project Committee Report	Report from the Project Manager to the Project Committee on a time-driven frequency on stage progress.
Project Contingency	This is normally used for scope changes and will require presentation at Capital Project Review who will recommend, or otherwise, that it should proceed to Committee for approval, rejection or referral. It requires approval from the correct authorities as indicated in the Change Order Request form and must include the Finance Director's approval.
Project Issue	A term used to cover either a general issue, query, a Request for Change, suggestion or Off-Specification raised during a project. Project Issues can be about anything to do with the project.
Project Programme	The project programme is an essential key document/tool which should clearly outline the key dates and stages of the project from start to finish.

Project Sponsor (Sometimes referred to as Senior User)	A member of the Project Committee, accountable for ensuring that user needs are specified correctly and that the solution meets those needs.
Quality	The totality of features and characteristics of a product or service that bear on its ability to satisfy stated and implied needs. Also defined as fitness for purpose or conforms to requirements.
Risk Log	A document that provides identification, estimation, impact evaluation and countermeasures for all risks to the project. It should be created during the start-up of the project and developed during the life of the project. Also known as Risk Register.
Senior Management Board (SMB) Paper	The formal paper submitted for project approval at the end of Feasibility (Stage 1) to the Senior Management Board.
Senior User	A member of the Project Committee, accountable for ensuring that user needs are specified correctly and that the solution meets those needs.
Specialist Systems	Those systems within a building which are critical to functionality or of significant risk.
Stakeholders	Parties with an interest in the execution and outcome of a project. They would include business streams affected by or dependent upon the outcome of a project.
Synopsis	The "Synopsis of Project Case" is a condensed summary statement giving an overview of the key information of the project. This synopsis is utilised in the process of requesting approval to proceed from Feasibility to Project.
User(s)	The person or group who will use the final deliverable(s) of the project.
Work Breakdown Structure (WBS)	A work breakdown structure (WBS) is a tool used to define and group a project's elements (or tasks) in a way that helps organize and define the total work scope of the project.