

What is a Feasibility Study ?



FEASIBILITY

PREPARATION & BRIEF

- An analysis of the viability of an idea through a disciplined and documented process.

BRIEF

- Helps answer “Should we proceed with the proposed project/idea? Is it a viable business venture?”

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FEASIBILITY

CIOB

PREPARATION & BRIEF

RIBA

BRIEF

BIM DIGITAL PLAN OF WORK 2013

Stage checklist

Key processes:

- Project brief
- Project manager selection
- Feasibility studies
- Business case
- Funding options
- Delivery parameters
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Key objective:

- 'Is the *need* feasible?'
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Key deliverables:

- Project brief
- Signing off business case

Key resources:

- Client team
- Project manager
- Specialist consultants

What is the meaning of feasibility?

A dictionary definition :- '*Analysis or research into the practicality of a proposed plan or method, based on factors like marketplace, competition, available technology, manpower, and financial resources*'.

What is a feasibility study ?

'A study designed to determine the practicability of a system or plan'

Stage process and outcomes

During this stage, the client is establishing objectives and reviewing the various options available to achieve these objectives. Commencing with only a conceptual understanding of what the client requires, this stage involves developing and defining the client's requirements, identifying and appraising all the options, and concludes with a client decision to proceed on a firm course of action.

Outcomes:

- definition of client' objectives
- appraisal of different options
- a recommended best course of action to achieve the objectives
- demonstration of the financial viability of the preferred solution
- confirmation of a project brief
- business case (produced by the client)
- client executive-level approval to project proposals (usually based on a business case)
- client decision to proceed or not to proceed to the strategy stage
- prepare core consultant scope of services

Client's objectives

The main objectives for the client at this stage include identifying and specifying the project objectives, outlining possible options and select the most suitable option through sustainability, value and risk assessment. At this stage, establishing the project execution plan (PEP) for the selected option should be the key output.

A PEP is a plan for carrying out a project, to meet specific objectives, that is prepared by or for the project manager. In some instances this is also known as the project management plan.

Outline project brief

For most clients, a building is not an end in itself, but merely the means to an end: the client's corporate objectives. The client's objectives may be as complex as the introduction and accommodation of some new technology into a manufacturing facility or the creation of a new corporate headquarters; or they may be as simple as obtaining the optimum return on resources available for investment in a speculative office building.

The client's objectives are usually formulated by the organisation's board or policy-making body (the investment decision maker) and may include certain constraints – usually related to time, cost, performance and location. The client's objectives must cover the function and quality of the building or other facility.

If it is considered that the objectives are complex enough to merit the engagement of a project manager, the appointment should ideally be made as early as possible, preferably after approving the project requirements at the inception stage. This will ensure the benefit of the special expertise of the project manager in helping to define the parameters and in devising and assessing options for the achievement of the objectives.

PROJECT TITLE	
PROJECT REF	
CLIENT:	
PROJECT SPONSOR:	
PROJECT MANAGER:	
GOAL This needs to be specific and include the justification for the project It should spell out : what will be done and by when ;	
OBJECTIVES It is essential these cover the OUTCOMES expected of the project and that preferably they are: Specific – i.e. clear and relevant Measurable – i.e., so it is feasible to see how it is progressing Achievable / agreed to – helpful to use positive language and that others 'buy-in' to the objectives Realistic – this depends of three factors: resources/ time/ outcome or aim Time bound have a time limit – without this they are wishes	
APPROACH The project plan should include the key milestones for the review, i.e., set a target date for agreeing the project brief and target dates for achieving key stages of the project.	
SCOPE This sets the project boundaries and it can be useful to add what is NOT covered. It is an essential reference point if the project changes in due course	
CONSTRAINTS Could state 'start' date and 'end' dates, functional restraints, operational parameters, etc.	
DEPENDENCIES This identifies factors outside the control of the project manager, and may include ■ Supply of information ■ Decisions being taken at the right time ■ Other associated projects	
RESOURCE REQUIREMENTS Include estimate of input required from the project team	
AGREED Signature: _____ Date: _____ Project Manager: _____ Project Sponsor : _____	

Figure 2.1 Outline Project Brief

The project manager should be provided with, or assist in, preparing a clear statement of the client's objectives and any known constraints. This is the initial outline project brief to which the project manager will then work. A typical example of a template for an outline project brief is shown in Figure 2.1.

Feasibility studies

There is seldom, if ever, a single route available for the achievement of the client's objectives, so the project manager's task is to work under the client's direction to help establish a route which will best meet the client's objectives within the perceived constraints that are set. In liaison with the client, the project manager will discuss the available options and initiate feasibility studies to determine the strategy to be adopted. In order that the feasibility studies are effective, the information used should be as full and accurate as possible. Much of that information will need to be provided by specialists and experts. Some of these experts may be available within the client's own organisation or be regularly retained by the client: lawyers, financial advisors, insurance consultants and the like. Others, such as architects, engineers, quantity surveyors, project planners, planning supervisors, town planning consultants, land surveyors and geotechnical engineers, may need to be specially commissioned. In some instances, it is desirable to involve constructors (e.g. in case of framework contracts or even design and build contracts) in preparation and completion of the feasibility study.

Feasibility study reports should include the following:

- scope of investigation (from outline project brief) including establishing service objectives and financial objectives
- studies on requirements and risks
- public consultation (if applicable)
- consultation with stakeholders and third parties
- a geotechnical study (if applicable)
- environmental performance targets (e.g. BREEAM or LEED, Code for Sustainable Homes and EcoHomes;
- an environmental impact assessment
- a health and safety study
- legal/statutory/planning requirements or constraints
- risk management strategy
- estimates of capitals and operating costs (demolition costs, if applicable)
- assessment of potential funding
- potential site assessments and remediation strategy (if applicable)
- master development schedule

The client will commission feasibility studies and establish that the project is both financially viable and deliverable. The client may instruct the project manager at this stage and, if so, his input will be made alongside the reports and views of the various consultants.

The client may ask the project manager to engage and brief the various specialists for the feasibility studies, coordinate the information, assess the various options and report on his conclusions and recommendations. The feasibility report should include as a minimum a 'risk assessment' for each option and will usually also determine the contractual procurement route to be adopted and an outline development schedule

applicable to each. The client may also require comparative 'life cycle costings' to be included for each option. The issue of sustainability is now a significant part of all development projects, whether new build or refurbishment, and the three elements of environment, economy and society must be considered from the earliest stages of each project.

During the progress of the feasibility studies, the project manager will convene and minute meetings of the feasibility team, report progress to the client and advise the client if the agreed budget is likely to be exceeded. Feasibility studies including revenue assessment are the most crucial, but also the least certain phase of a project. Time and money spent at this stage will be repaid in the overall success of the project. The specialists engaged for the feasibility studies are most commonly reimbursed on a time-charge basis and without commitment to engage the specialist beyond the completion of the feasibility study, although often some or all members of the feasibility team will be invited to participate in the selection process to become design team members. The project manager will obtain a decision from the client on which option to adopt for the project and this option is designated the outline project brief. The process of developing the project brief from the client's objectives is shown in Figure 2.2.

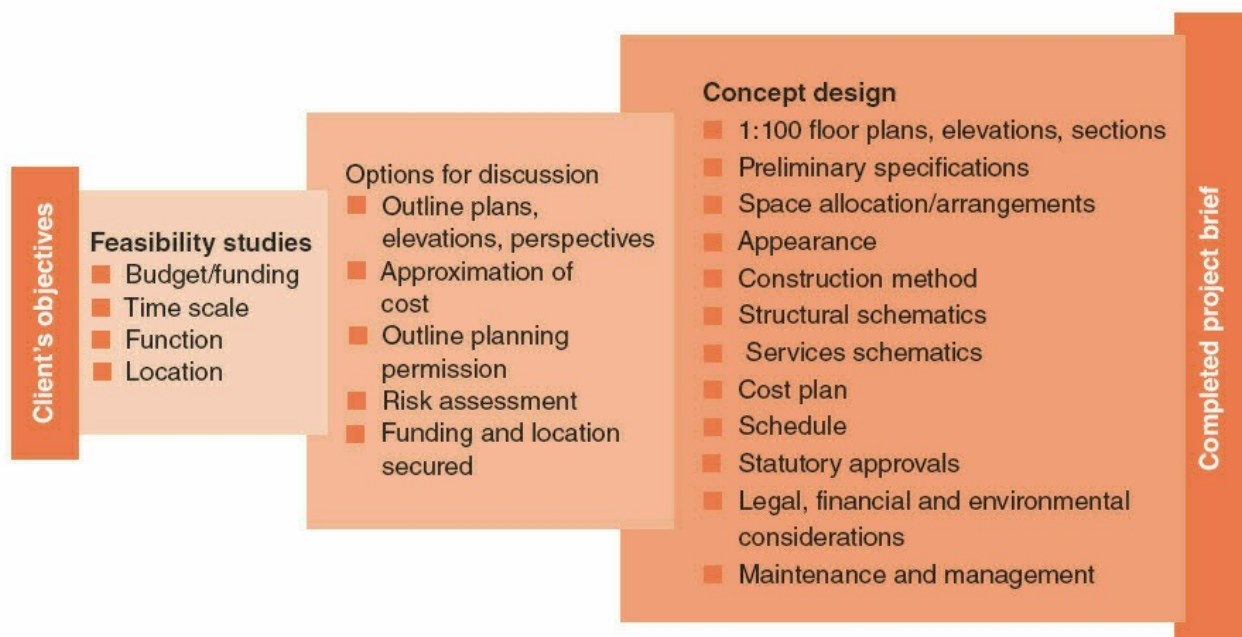


Figure 2.2 Development of Project Brief from Objectives

Site selection and acquisition

Site selection and acquisition is an important stage in the project cycle where the client does not own the site to be developed. It should be effected as early as possible and, ideally, in parallel with the feasibility study. (It is to be noted that the credibility of the feasibility study will depend on the major site characteristics.) The work is carried out by a specialist consultant and lawyers and may involve a substantial due diligence exercise. This will be monitored by the project manager. The objectives are to ensure that the requirements for the site are defined

in terms of the facility to be constructed, that the selected site meets these requirements and that it is acquired within the constraints of the outline development schedule and with minimal risk to the client.

To achieve these objectives the following tasks will need to be carried out:

- Preparing a statement of objectives/requirements for the site and facility/buildings and agreeing this with the client
- Preparing a specification for site selection and criteria for evaluating sites based
- on the objectives/requirements
- Establishing the outline funding arrangements
- Determining responsibilities within the project team (client/project manager/ commercial estate agent)
- Appointing/briefing members of the team and developing a schedule for site selection
- and acquisition; monitoring and controlling progress against it
- Actioning site searches and collecting data on sites, including local planning requirements, for evaluation against established criteria
- Evaluating sites against criteria and producing a shortlist of three or four; agreeing weightings with the client
- Establishing initial outline designs and developing costs
- Discussing short-listed sites with relevant planning authorities
- Obtaining advice on approximate open-market value of short-listed sites
- Selecting the site from a shortlist
- Appointing agents for price negotiation and separate agents for independent valuation
- Appointing solicitors as appropriate
- Determining specific financial arrangements
- Exchanging contracts for site acquisition once terms are agreed, conditional on relevant matters, for example, ground investigation, planning consent

Project brief

The formulation of the brief for the project is an interactive process involving most members of the design team and appropriate representatives of the client organisation.

It is for the project manager to manage the process, resolving conflicts, obtaining client's decisions, recording the brief and obtaining the client's approval. Managing the client organisation to ensure input into the brief comes from the right person is as important as it is time consuming. This ensures that the project manager gets to know and understand the structure, culture and personalities of the client body. At best this establishes ownership and champions for various aspects of the project at an early stage. Figure 2.3 lists some suggested contents for a project brief.

If earlier work has been done, the project brief may refer to the document(s) containing useful information, such as the outline project brief, rather than include copies of them. It is not unusual during this phase for the client

The following is a suggested list of contents, which should be tailored to the requirements and environment of each project.

- **Background**
- **Project definition, explaining what the project needs to achieve. It will contain**
 1. Project objectives
 2. Project scope
 3. Outline project deliverables and/or desired outcomes
 4. Any exclusions
 5. Constraints
 6. Interfaces
- **Outline business case**
 1. A description of how this project supports business strategy, plans or programmes
 2. The reason for selection of this solution
- **Funding objectives**
- **Performance expectations**
- **Acceptance criteria**
- **Risk assessment**

Figure 2.3 Contents for Project Brief

to modify his thinking on various aspects of the proposals, and there is certainly the opportunity and scope for change during this phase. Figure 2.4 demonstrates graphically the relationship between 'scope for change' and the 'cost of change' set against the time-scale of a development. It will be seen that the crossover point occurs at the completion of the strategy stage. The client's attention should always be drawn to this relationship and to the benefits of brief and design freezes.

The key emphasis for the client should be to understand and establish enough information about the end requirements and objectives for developing the project. This point cannot be overemphasised. It is essential that the project manager identifies the client's needs and objectives through careful and tactful examination, in order to minimise the risk of potential future changes to the project brief. Many clients who are unfamiliar with the development process are not perhaps fully aware of the importance of getting the design right as much as feasible at the start of the project, and therefore the importance of making sure the brief fully reflects the client's requirements, before design commences and getting the design right before materials ordering and construction commences. The project manager should do his utmost, therefore, to familiarise the client with the potential cost and time implications of design changes and identify as clearly as possible the precise requirements of the client. While this input may come from the project manager, it is advisable, especially for complex and business critical projects, that a 'client advisor' is appointed to give independent advice until the need for a construction project has been established.

Design brief

Within the project brief, the assembly of the design brief will normally be the responsibility of the lead design consultant along with the project manager and, where appropriate, the client and the constructors. The project manager will monitor the assembly of the design brief to ensure compliance with the outline project brief, the project budget and the master programme.

Depending on the nature of the project, procurement method adopted and the master programme, it is sometimes practical for some activities to proceed in parallel. However, if the design brief is not finalised before the final concept design is started, then change, delay and increased costs are almost bound to follow. The site preparation should never start until after the concept design has been finalised and signed off.

While decisions on some elements of the design brief may be deferred by the client even until after construction has commenced, this inevitably involves some risk for which time and cost contingencies should be provided. Accordingly, in order to promote certainty, it is much better and usually possible (except in extreme circumstances) to complete the brief and the design before construction begins. It just needs good project management.

The project manager will advise the client of the implications for cost, time and risk in the deferment of any elements of the design brief. The project manager will monitor the progress of the assembly of the concept design and notify the client of the effects on cost, time, quality, function and financial viability of any changes from the design brief.

Funding and investment appraisal

In all development projects, a balance between cost and value must be established. The financial appraisal of the project can either be assessed by calculating the total cost and then assessing the value or alternatively, calculating the value of the end product and working out the project costs with an eye to value. In either case, the client will expect value to exceed cost, and in the case of developer-led projects the client will at inception stage have decided on the level of profit (or benefit) required for the amount of risk involved. A thorough risk analysis, particularly analysing the market conditions on the potential revenue generation, interest rate changes, potential impact of programme delay and outcomes of similar historical precedents (which may be incorporated within the business plan or development appraisal for the project), is usually performed to assist in decision making.

Developers and many clients experienced in construction procurement may not require specific help from the project manager in these areas but should keep him well informed of the financial arrangements so that they can be taken into account in any project decisions. On the other hand, clients unfamiliar with construction may require an input by the project manager or from another independent advisor.

In any case, although the project manager may have knowledge of project finance, it is unlikely that he will be expected to advise in this area. Specialist advisors or the client himself will arrange bank finance; take tax and legal advice in all those areas relating to the acquisition of the site and the financing of the development project. The project manager should be able to advise on certain matters relating to VAT, budgetary systems, cost and cash flow. The project manager should also know when and where to go for specialist advice to augment his own expertise or his client's expertise in such matters.

Development planning and control

Planning has become a key means of delivering a number of the government's objectives relating to climate change, reducing carbon emissions, access to housing and improving the supply of housing, enhancing biodiversity and a number of other emerging priorities. Typically these are addressed via the process of formulating local planning policies for the area of each LPA (Local Planning Authority) on a local basis.

Any significant development will also require a variety of different consents from different agencies before commencement, such as approval of construction materials and methods under the relevant Building Regulations). Based on the fundamentals of the Town and Country Planning Act (1947) and various subsequent amendments, over 400 LPA's regulates land use and new buildings relying on a 'plan-led system' whereby development plans are formed and the public is consulted. Subsequent development requires planning permission, which is granted or refused with reference to the development plan as a material consideration.

Stakeholder identification

Stakeholders are those individuals or groups who directly or indirectly has an influence on and or is influenced by the proposed project. External stakeholders would usually include financial institutions, customers, end users and members of the public. In some instances, some stakeholders would be identified through regulatory or legislative requirements.

Internal stakeholders will include organisations involved directly in the project which may include suppliers and service providers, and the individuals who have sufficient power to determine the strategy of the organisation. Stakeholder mapping is the process which identifies stakeholders and the associated expectations and power. It also helps to understand any underlying political priorities within the stakeholders. It underlines the importance of two issues:

- How interested each stakeholder/group is to impress its expectations on the project
- Whether the stakeholders have the power to do so

Business case

A business case is used to obtain management commitment and approval for funding or investment through demonstrating a rationale for the funding or investment. The business case provides a framework for planning and management of the proposed development as well as a monitoring benchmark for the ongoing viability of a project.

Approval to proceed

The client, reviewing the documents generated throughout this phase, has to re-affirm the decision to proceed with the project, in order to:-

- Provide the authorisation of financial management and control throughout the project
- Ensure that no commitment is made to large expenditure on the project before verifying that it is sensible to do so

At the early stages of a project, it is unlikely that the actual costs will be known. It is important to check the need for financial provision (including time, cost and risk contingencies) has been recognised by all the parties. The predicted project cost at later stages, which will in most cases be different to the original estimate, requires the question of affordability to be revisited at that stage to be sure that adequate funds are available.

BIM brief

Once the project brief has been established, this will set the parameters for the project. This will include programme, budget, and requirements around function, quality, standard of provision, environmental performance and lifecycle. Using a BIM approach, it is possible to quite quickly develop basic conceptual options, not only for evaluation by the client but also discussion with other stakeholders such as local community, development control and end users. In an established BIM environment with experienced practitioners, libraries of data and content will be available. These could include benchmarking data for costs, procurement, product libraries and information from related or similar projects. All of this will help inform the feasibility process, the aim of which is to identify the preferred option to take the project forward. There are also benefits of BIM from a lifecycle perspective in terms of building services, management and replacement of components.

Simple visualisations could be used at this stage to illustrate proposals and simulation and validation techniques used to quantify costs, assess environmental factors, orientation and access requirements for instance. In this way, the project brief can be developed in detail and expectations and understanding aligned across the team.

Hand out Date 16/11/16

Hand In Date 30/11/16

NAME

COURSE

Grade

Exercise**1.** What is a PEP?

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2. Who is usually responsible for the Design Brief?

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3. What is the Project Manager's input into the Project Brief?

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4. Describe what the Outline Project Brief contains.

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5. What drawings would be included at Concept Design stage?

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6. At Stage Process what are the client's needs and desired outcomes?

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7. What would you consider to be the 5 most important considerations to be included in a feasibility report and, very briefly, why?

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8. During the progress of the feasibility study, what is the Project Manager's role?

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9. What is the definition of a feasibility study?

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10. List 7 items which might be included in a Project Brief.

A)..... B) C).....

D)..... E)..... F).....

G).....