Figure 8.2 Client requirements.

- Client's aims, performance specifications and project description
- Project's business priority or strategic objective
- Project objectives (time, cost and quality) and their relative priorities
- Constraints and success criteria

Figure 8.3 Project requirements.

- Project scope
- Project deliverables
- Functional requirements, to meet the performance specifications
- Acceptance criteria of end product
- Project identification and coding
- Assumptions required to deliver end product

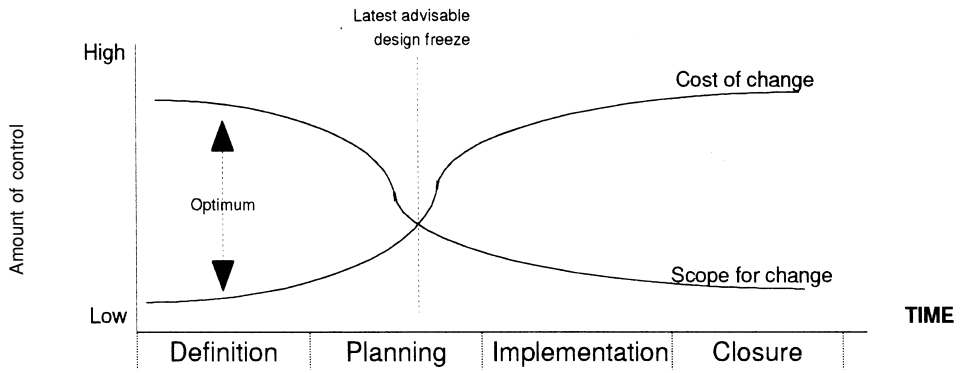
development of a project, particularly if they are likely to be the users. This issue was discussed in earlier chapters.

In the field of urban design the project manager may, of course, be the person leading the design work, although much will depend on the nature of the project or the client's available expertise and interests. The project manager, who may be educated in any of a number of disciplines, has the continuous duty of exercising control over project time, cost and performance. To achieve such control it is important to produce a project brief, referred to in project management terms as the Project Requirements Definition (PRD) document.

The Project Requirements Definition is the full definition of what the project is about. It includes the items shown in Figures 8.2 and 8.3. The items in Figure 8.2 follow directly from the client's requirements while those in Figure 8.3 are concerned primarily with the definition of a successful outcome.

This vital strategy document is used by the project manager to obtain the client's decision and full authorization for the project. It provides a contract between the client and the project manager and forms the baseline for changes. It provides the starting point for developing a detail project plan and provides a reference point for review and audits at later stages of the project. The term 'Project Requirements Definition' is used in business jargon; in many ways it is equivalent to the agreed design brief to which the urban designer works. The rigour of the design brief and programme in urban design would be greatly enhanced by the inclusion of measurable criteria for determining a successful outcome.

Figure 8.4 Relationship between scope for change and cost of change.



As project development progresses, the control over project outcome decreases and the cost of saving time, or removing errors, increases. The value of early definition and the relationship between scope for change and the cost of change, set against the timescale of a project, is described graphically in Figure 8.4.

It is useful, at this stage, to undertake a thorough analysis of project risks. The technique for identifying and quantifying aspects of the project that could lead to losses is known as Risk Analysis. Risk can be defined as exposure to adverse consequences. Risks exist in all forms of project and are normally of a physical or financial character. Physical risks relate to loss of, or damage to, goods and property, and financial risk relates to loss of money. Most projects, including those in urban design, are business ventures; the risks are therefore concerned with financial losses rather than physical hazards. Where physical risks are involved the project manager should consider taking out insurance cover. The analysis of risk gives an increased understanding of the project. It allows the formulation of more realistic plans, in terms of both cost estimates and timescales. It identifies the party best able to handle a risk and leads to the use of the most suitable form of procurement strategy. It also allows the assessment of contingencies that actually reflect the risk.

Risk may be internal or external to the project. Some examples of internal risk are shown in Figure 8.5. External risks are shown in Figure 8.6.

It is helpful to identify both the internal and external risks and their potential impact on the project objectives. External risks are always much harder to deal with than internal ones. A project manager can usually control internal risks, but can only react to external ones. Where risks can be identified, the project manager can take action to lessen their impact on the project. This can be done firstly, by identifying and assessing risk; secondly, by managing the risk to minimize the adverse effects, and thirdly, by monitoring and evaluating the risks. Risk assessment helps in quantifying or ranking the risks according to how likely they are to arise and in predicting their effect. This can be done by producing a risk assessment table which not only identifies the risks most likely to occur, but also outlines the actions which will contain or eliminate them (see Figure 8.7).

- The project goal: it may be too ambitious
- The project plan: the activities may be poorly perceived and the interactions not well understood
- The project organization: it may be poorly staffed and managed badly
- The project methods: they may fail to provide adequate controls

Figure 8.5 Internal risks.

- The client: support can be withdrawn or interference with the running of the project can take place
- The market environment: market preferences may change and make the project less attractive
- The supporting links: suppliers can be unable to deliver according to schedule or may be affected by industrial disputes
- The competition: competitors may instigate rival bids or projects in adjacent areas

Figure 8.6 External risks.

As most risks are ultimately measured in financial terms, the techniques usually used for assessing risks are of a monetary nature.[4] They include:

- break-even analysis;
- cost–benefit analysis;
- multiple criteria analysis.

Some of these techniques have been described in earlier chapters. Having analysed risks, it is wise to prepare strategies that minimize the adverse effects on the project if the risks materialize. This is known as risk management.