

Best Value in Construction

Edited by

**John Kelly, Roy Morledge
and Sara Wilkinson**

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Foreword

It is always encouraging when a profession is looking for continuous improvement and sustains this attitude over a number of years. Identifying new directions is part of this process. This book follows on from the very successful previous volume (*Quantity Surveying Techniques: New Directions*) which I had the honour of editing. It uses the same format and addresses many of the key issues facing construction professionals today including the techniques by which their advice can be enhanced. I believe it will make a major contribution to the advancement of the methods by which construction professionals provide a service to their clients.

Peter Brandon

Preface

In 1990 Blackwell Science published *Quantity Surveying Techniques: New Directions* in association with the Royal Institution of Chartered Surveyors. This represented a distillation of knowledge of the techniques used in the quantity surveying profession at that time.

Time has moved on and it now seems appropriate to re-visit this, to assess what approaches we should be adopting to seek to achieve best value for the client. If there is one factor that characterises the change that has taken place between now and then, it is the focus that is now being placed on the needs of the client and how to interpret these in the most effective fashion. No longer do we assume that the aim is simply to keep costs under control: we now seek to take a far wider view of what we are aiming to achieve.

This book from the RICS Foundation seeks to look at the entire life cycle of buildings, from initial inception, right through to their use and development, and analyses how we can provide best value to the client through the effective application of leading edge techniques and processes.

Buildings play a fundamental role in all our lives and, properly managed, can enhance the quality of life for all of us. This book provides the essential tools to deliver this.

Stephen Brown
Director of Research
RICS Foundation

Biographies

Editor Biographies

John Kelly, BSc, MPhil, MRICS John is the Morrison Professor of Construction Innovation at Glasgow Caledonian University. Having trained and practised as a quantity surveyor before becoming an academic, he has worked in the field of value management for 20 years, the majority of that time with Professor Steven Male. Together they have published widely, conducted considerable funded research and undertaken value-related consultancy across a wide spectrum of clients and projects. John's major interest lies in the investigation of value strategies at the inception of projects and includes partnering and project briefing.

Roy Morledge, MSc, FRICS Roy is Professor of Construction Procurement at The Nottingham Trent University. Roy joined the university after 14 years in contracting, latterly as chief surveyor for a regional construction company. He is managing editor of the international *Journal of Construction Procurement* and has published widely through professional and academic journals. He is currently Director of the Graduate School in the Faculty of Construction and the Environment and undertakes procurement-related consultancy work mainly for national organisations on behalf of the University.

Sara J. Wilkinson, BSc, MPhil, FRICS Sara is a Principal Lecturer and Course Leader in Building Surveying at Sheffield Hallam University. She is responsible for encouraging and developing building surveying research at Sheffield Hallam. Her MPhil research examined the conceptual understanding of sustainable building in the construction industry. Sara was awarded the Jones Lang Lasalle Education Trust Scholarship to research international refurbishment practice in office property. She is a member of the RICS Research Foundation Advisory Panel, and a referee for the RICS COBRA conference. She is a reviewer for the *International Journal of Quality and Reliability Management*. Sara has completed a number of funded research projects and made numerous presentations at national and international research conferences. A number of her research projects have involved international comparisons of surveying and construction practices. Her research interests relate mostly to commercial property and a number of issues such as levels of specification, refurbishment practice, obsolescence and energy issues. She has recently published an RICS research paper entitled *Barriers to Energy Efficiency in the Private Rented Sector*. Currently she has a Teaching Fellowship at Sheffield Hallam University to develop best practice in undergraduate dissertation. Sara's teaching materials are used as

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Norman Fisher, PhD Norman is Professor of Project Management in the School of Construction Management and Engineering at The University of Reading, UK. Between 1992 and 1997 he was the BAA Professor of Project Management. He is also director of Advanced Construction Technology Reading (ACT), a project management process research group. His current research interests include international business and project strategy, marketing processes, project management - design and project process management systems, visualisation and electronic proto-typing/digital mock-up technology, advanced manufacturing systems for construction, automated/lean construction, knowledge based engineering, construction as a manufacturing process, the identification of user needs for developing design briefs and the wider design process. He is author of a number of publications, including refereed papers, book chapters and four books, with another in progress.

Chris Fortune, BSc, MSc, PhD, FRICS, MCIQB Chris is a former RICS teaching fellow who gained his bachelor's degree in quantity surveying from the former Bristol Polytechnic, his master's degree from the University of Salford for research into professional competencies in quantity surveying and his doctorate from Heriot-Watt University for research into the building project price forecasting processes. He has held a university research fellowship and he has undertaken a number of RICS Education Trust research

projects. Chris is a member of the Association of Researchers in Construction Management (ARCOM) and currently serves as its secretary. Chris is Senior Lecturer in the Department of Building Engineering and Surveying at Heriot-Watt University.

Margaret Greenwood, BSc(Hons), DMS, MSc Margaret is Senior Lecturer at the Bristol Business School at the University of the West of England. Prior to this appointment, her 20-plus years of working experience and consultancy activities were mainly in construction with a focus on project and risk management. She has degrees in civil engineering, management studies and construction management. Her academic activities centre on lecturing and research in business systems and their management; this includes operations, people, projects and risk. Margaret is currently the Chairman of the Association for Project Management.

John Hinks, BSc(Hons), MA, PhD John is Director of the Centre for Advanced Built Environment Research (CABER), the virtual research organisation involving the Building Research Establishment, Glasgow Caledonian University and the University of Strathclyde. His present Facilities Management research interests address the strategic nature and assessment of the FM management process. He co-authored the RICS report *Perceptions and Strategic Priorities of Chartered Surveyors* with John Kelly and Gavin McDougall. John has been guest editor of the international journal *Facilities* and is a member of the BIFM Research Committee.

Keith Jones, BSc(Hons), PhD Keith Jones is a Principal Lecturer in the School of Land and Construction Management at the University of Greenwich and leader of the Sustainable Buildings Research Group. He has been actively involved in building maintenance consultancy and research since the mid-1980s, developing a number of computerised maintenance management systems and authoring numerous academic papers on the subject. He is currently joint coordinator of the CIB W70 International Research Task Group on building maintenance and property management.

Steven Male, BSc, MSc, PhD Steven is Balfour Beatty Professor of Building Engineering and Construction Management in the School of Civil Engineering at the University of Leeds. Steven has worked extensively with client and construction industry supply chain members in the area of value management. Together with John Kelly he has jointly researched, developed, benchmarked and implemented a value management methodology for the UK construction industry.

Christine Pasquire, BSc, PhD, FRICS, MACostE Christine is a quantity surveyor and lecturer in the Department of Civil and Building Engineering at Loughborough University where she teaches Construction Economics. She is the Director of the MSc programme in Mechanical & Electrical Project Management and manages several UK Research Council and industry-funded projects investigating aspects of M&E Project Management including whole-life costing, evaluating client benefit, preassembly and early costing.

Jon Robinson, BArch, BSc, MBldg, MLandEc, FRICS, FAPI, FRAIA, FAIB, FAIQS Jon was appointed to the Chair of Building in the Faculty of Architecture Building and Planning at the University of Melbourne during 1996. Prior to this appointment, he was for many years a senior consultant with AT Cocks Consulting, an independent firm of property advisers and management consultants. His expertise is in accommodation studies, property investment analysis, life-cycle costing, valuation and appraisal and development feasibility studies. In addition he has qualifications in architecture and quantity surveying. Jon has written *Property Valuation and Investment Analysis: a Cash Flow Approach* as well as numerous papers in the field of property including applications in facilities planning and management. He has recently presented papers at international conferences in Helsinki, Amsterdam, Dublin, Reading, Leicester and Singapore. He serves on the Editorial Boards of the *Journal of Property Valuation and Investment* (United Kingdom), *Property Management* (UK) and *Real Estate Valuation and Investment* (Lithuania).

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Danny Shiem-Shin Then, BSc, PhD Danny is Associate Professor at the Hong Kong Polytechnic University. Danny's research and consultancy interests lie primarily in the area of strategic space management. He is co-author of the textbook *Facilities Management and the Business of Space*.

David Weight, BSc ARICS David is the cost data manager for Currie and Brown International and is responsible for the development of their 'Live Options' building project price forecasting tool. David worked as an architectural technician and as an engineering technician before reading for his bachelor's degree in quantity surveying as a mature student at the former Bristol Polytechnic. He has worked for differing types of organisations within the construction industry and qualified as a member of the Royal Institution of Chartered Surveyors in 1996. David was actively involved with the development of spreadsheet applications for energy-efficient cost planning in the mid-1980s which was published by the Society of Chief Quantity Surveyors and led him to co-author a text on feasibility studies in construction with Stephen Gruneberg which was first published in 1990.

1

Best Value in Construction

John Kelly, Roy Morledge and Sara Wilkinson

1.1 Introduction

This book is aimed at construction clients and construction practitioners seeking advice and debate on issues central to the provision of Best Value in construction. This is achieved through commentaries on good practice and the collation of recent research work into construction processes. The book is also structured to provide a pivotal reference for undergraduate and graduate students of construction.

This book gives insights into an understanding of the client value criteria and discusses this in the context of clear strategic and project briefing. The book outlines a range of techniques for managing the project from inception to completion and includes an extensive section on the management of the asset for the benefit of the client. Recent research has evaluated techniques for doing business better such as benchmarking and doing business in a more controlled manner using value and risk management, price prediction and whole-life costing. This book also reflects a changing attitude towards the environment in a chapter on the factors to be considered in environmental management. Recent developments in procurement management, supply chain management and the management of the project are recorded, reflecting a change in the more professional approach to construction by constructors. Facilities management, post-occupancy evaluation and maintenance management, whilst always thought of as important by clients, are now considered vital by all members of the design and construction team. This, particularly as the management of the asset, becomes the financial responsibility of consortia including the design and construction team under procurement systems such as the private finance initiative (PFI).

During the latter part of the 1990s a spate of UK construction reports appeared. Latham was published in July 1994, Technology Foresight a year later, the twelve CIB reports during 1996 and 1997 (see CIB, 1996a–g, 1997a–e) and Egan in 1998.

The UK construction industry has also undergone significant change in reaction to PFI, prime contracting and similar public sector procurement initiatives aimed at satisfying recent HM Treasury directives on value for money and best value. In parallel contractors are undertaking more work against a guaranteed maximum price in which an overt understanding of risk and value becomes vital. Strategic partnering programmes are seen by many contractors as the prime method of offering clients the best service against a background of more certain overhead and profit returns. Involvement of the design and construction team with the client at the earliest stage in the project's life cycle is perceived as being conducive to maximising innovation potential.

Over the same period facilities management and sustainability have emerged as areas of growing importance to the construction industry. In the UK a number of construction companies have rebranded themselves as service providers within the facilities management market – a market with a multibillion pound latent worth.

This presents a rich background for construction research of the type illustrated in this volume. The Latham report *Constructing the Team* published in 1994 set the agenda by stating that improvement begins with clients and particularly with government committing itself to being a best-practice client and promoting excellence in design. This can only occur if a clear and relevant brief prompts a responsible approach to design, particularly in the building services engineering field. Further, the endless refining of existing conditions of contract will not solve old adversarial problems and therefore a set of basic principles is required on which modern contracts can be based and in which adjudication is the normal method of dispute resolution. Building users insurance against latent defects is recommended as being compulsory for new commercial industrial and retail building work. The role and duties of the project manager need clearer definition and in government-sponsored projects, project sponsors should have sufficient expertise to fulfil their roles. Latham recommended a joint code of practice for the selection of contractors, which includes commitments to short tender lists, clear tendering procedures and teamwork on site. Clients should evaluate tenders on quality as well as price. A productivity target of 30% real cost reduction by the year 2000 is probably the best remembered recommendation. The Latham report spawned the Construction Industry Board, the creation of 12 working groups and the production of 12 documents during 1996 and 1997, all aimed at improving construction efficiency by responding to the Latham directives.

The Technology Foresight report *Progress Through Partnership*,

Number Two, Construction, published by HMSO in 1995 stated that the vision for construction is one which sustains high levels of productivity, profitability and responsibility. This was seen to be achievable through the production of world-class products and services for markets at home and abroad and through making major and successive productivity improvements within a new innovative culture stimulated jointly by government and the industry.

Technology Foresight identified five engines of change:

- (1) The provision of more appropriate education and training to meet the needs of a modern construction industry, incorporating learning networks to foster greater collaboration across industry and supplier boundaries.
- (2) The exploitation of the information revolution to aid communication.
- (3) Fiscal changes to facilitate a long-term view and a corresponding increase in the volume of construction.
- (4) The creation of a culture of innovation based on the belief that sustained profitability flows from innovation in both process and technology.
- (5) The key opportunities which will lead directly to lower cost and greater profitability through the use of standard components to produce customised solutions.

The Egan Report *Rethinking Construction*, published by the Department of the Environment, Transport and the Regions in 1998, stated that the UK construction industry is underachieving, has low profitability and invests too little capital in training, research and development. Many of the industry's clients are dissatisfied with its overall performance. There are five key drivers of change which need to set the agenda for the construction industry at large:

- (1) Committed leadership
- (2) Focus on the customer
- (3) Integrated processes and teams
- (4) A quality-driven agenda
- (5) Commitment to people

Egan further set the following measurable objectives of an annual reduction of 10% in construction cost and construction time, and a reduction of defects in projects by 20% per year. Achievement of these targets is thought only possible if the industry makes radical changes to the processes through which it delivers its products. The industry should create an integrated project process, which is explicit and transparent to all in the industry and its clients, around the four key elements of:

- (1) Product development
- (2) Product implementation
- (3) Partnering the supply chain
- (4) Production of components

Egan's view is that competitive tendering must be replaced with long-term relationships based on clear measurement of performance and sustained improvements in quality and efficiency.

Encouraged by these reports and the announcements made by HM Treasury there has been a move away from the procurement of projects based on the lowest price for a given specification to a more integrated team-based approach to achieving best value. In addition, teams are being required by clients not only to understand the value system of the client organisation but also to design and construct a facility in accordance with the client's value system and often to take responsibility for the running of that facility during its operational life. These issues are addressed in the following chapters.

1.2 Building the value case

Chapter 2 describes the components of the client value system in the context of understanding the corporate value, the business value, and the value drivers for construction projects. The chapter introduces the number and complexity of components of the client's value criteria, particularly within multi-headed organisations in which each department is competing for scarce resources within the corporate whole. The chapter reviews recent research at doctorate level that uncovers the paradigms and perspectives of complex client organisations and identifies the existence of a value thread, which extends through the client organisation and into the project. It is vital for the success of the project that this fragile value thread is not broken during the exchange of information and the passing of information through the complex communication networks that typify a construction project. The chapter also describes the existence of the value chain, a much more robust vehicle for the transmission of information within the various supply chains that exist to progress the project to completion. Supply chains are also discussed in detail in Chapter 11. A view is put forward that the breaking of the value thread is threatened by the procurement route adopted. This theme is further developed in Chapter 10.

1.3 Briefing

Chapter 3 defines and describes the briefing process, giving a review of current approaches, noting the most frequent impediments, and discusses the issues associated with good briefing. Having outlined the hazards to good briefing practice, the chapter highlights the importance of recognising the difference between the strategic brief and the project brief. In order to begin briefing it is necessary to recognise the purpose of the briefing documents, the responsibilities being taken by various members of the construction team, the change management regime, the constraints, the drivers and the language to be used to ensure complete understanding by all members of the team whether construction professionals or lay client members. The chapter discusses the approach to briefing through investigation or facilitation, illustrating many of the points through an example. The chapter concludes by stating that the brief is a document that will contain the project mission and goal descriptions from the strategic brief along with the performance specification requirements of the project brief. The full design and construction team should easily understand each of the requirements in terms that answer the client's needs and desires in the appropriate manner to meet the client value criteria. The brief becomes the primary audit document.

1.4 Benchmarking

Chapter 4 continues the theme begun in Chapter 3 in debating a practical approach to improving performance by describing benchmarking as the application of the skill of comparison. The chapter describes the techniques primarily used in the manufacturing sector and discusses the extent that those techniques can be transferred to construction. A useful checklist of factors to consider precedes a description of prerequisites, processes and methodologies. A discussion of the concept of performance improvement leads into the benchmarking case study, which uses the Movement for Innovation (M4I) industry average performance table of metrics comprising the ten key indicators of construction industry performance.

1.5 Value management

Chapter 5 outlines the background to the introduction of value management to UK construction based on many of the

methodologies adopted by US manufacturing organisations. The four generic stages in the development of any project, where the definition of the project is the investment of resource for return, are described in detail with reference to the relative impact of action at each of the four stages on the measure of quality that can be achieved in the final project. A brief review of the international benchmarking of value management precedes a description of the activities undertaken characteristically at various stages during the development of a construction project. The derivation of the function logic diagram, considered by many to be the fundamental aspect of value management, is described in detail. The chapter concludes by stating that value management has reached a level of maturity within manufacturing and construction whereby the style and content of the various workshops is reasonably predictable. However, it recognises that considerable further research work is required into methods of measurement of the client's value system in a form which would be suitable for auditing under the public sector requirements of the various value for money initiatives.

1.6 Risk management

Chapter 6 commences by defining uncertainty and risk. Uncertainty is defined as the term used to reflect genuine unknowns that could have positive or negative effects on a project. Risk on the other hand relates to an event, the time and cost consequences of which together with the probability of the event occurring can be estimated. Risk has a negative effect only. In a construction context it is therefore risk that needs to be identified and managed. Chapter 6 describes risk management over the project life cycle from project viability through feasibility and design and construction operation and maintenance. Techniques to be used and the stages to be recognised are highlighted and the chapter concludes with a case study of a Defences Estates prime contract in which all of the risks are described in detail. A feature of the risk management methodologies described in Chapter 6 is that they bear a relationship with value management described in Chapter 5.

1.7 Building project price forecasting

Chapter 7 outlines building project price forecasting in terms of current theory and practice. Through an extensive survey of techniques in use it has been established that many of those described in detail in cost planning textbooks have fallen out of use. The chapter

encouragingly reports that newer techniques relying on computer-based modelling are emerging, typically those associated with life-cycle costing and risk analysis. A detailed case study reviews the 'Live Options' software package and its characteristic ability to be integrated into the work of the design and construction team.

1.8 Life-cycle/whole-life costing

Chapter 8 describes the principles and traditional techniques of life-cycle/whole-life costing and illustrates these with reference to PFI-type projects. The difference between life-cycle costing and whole-life costing is described as being that the latter takes account both of expenditure and a revenue stream. The key concepts of life-cycle costing are described with reference to the time value of money, the life of the building and the period of time the investor has an interest in the facility. The barriers to the successful implementation of life-cycle costing are considered in detail. All techniques are illustrated by reference to PFI methodology. A review of the future is given by reference to current funded research projects.

1.9 Environmental management

In Chapter 9 environmental management is defined and discussed in the context of property and construction. The main issues considered are energy use and global warming, natural resources and waste and recycling, pollution and hazardous materials, internal environment and indoor air quality and planning and land use. The issues are discussed in terms of the decisions required to minimise the impact of the property on the environment. The issues are then related to a case study of a property development proposal for a sustainable building in Melbourne, Australia. Some of the broad building configuration and specification parameters required for an environmentally sustainable building are discussed. It is concluded that by adopting a paradigm of environmental design and construction, the property and construction industry can both play a useful part in the improvement of the environment and reduce humankind's environmental impact.

1.10 Procurement strategies

Procurement facilitates the formal configuration and realisation of a project, where a project is defined as the investment of resources for

return. In the context of construction, procurement is the outcome of a complex matrix of decision-taking by or on behalf of the construction client. Earlier chapters have highlighted the importance of understanding the client's business case. Chapter 10 addresses the development of a procurement strategy by analysing the client's business case and client need, prioritising objectives, making overt the client's attitude to risk and assessing the ability of the client and the construction industry in general, to resource the project.

Experienced construction clients adopt a procurement approach which has worked previously or is considered suitable, taking into account their prioritised objectives and attitude to risk. Thus a number of different procurement strategies are recognised and formalised. These procurement strategies are described together with a methodology for the selection of an appropriate procurement approach. The dysfunction that can occur between those involved with the development of the business case and those involved with project delivery is discussed in the context of a correctly considered and recorded approach to procurement. Formal and correct procedures will ensure that the construction industry's approach to construction project procurement is routine and a true reflection of the client's business objectives.

1.11 Supply chain management: a construction industry perspective

Chapter 11 explains that supply chain may be described as the procedures and activities which take a product or service from raw components to something of value to a client or customer. Supply chain management is therefore a structured approach to the organisation and running of the supply chain to maximise competitive advantage. This definition implies that the structure or 'map' of the supply chain is understood, that information is capable of being fed up and down the chain, such that the appropriate members of the chain have the correct knowledge at any particular point in time. Additionally, supply chain management anticipates feedback and learning within the chain that leads to continuous improvement. Within the supply chain there is an assumption of logistical efficiency leading to zero waste, zero defects and zero inventory. Although the science of logistics is rooted in manufacturing, the art of logistics is very much the preserve of the construction industry.

Partnering is recognised as a key facet of efficient supply chain management, particularly in the multi-organisational context of construction project activity. However, the cultural barriers of inter-organisational trust are a major deterrent to effective supply chain

management unless effectively overcome as in the case of the Defence Estates' Building Down Barriers project, the case study to this chapter.

Partnering within supply chain management is an effective part of the toolkit of a modern construction industry in satisfying clients that they are demonstrably receiving best value.

1.12 The management of a project

The efficient management of a construction project is intrinsically linked to the organisational structures set up for its management. Chapter 12 focusses on the role of the project manager, whether the client, an employee of the client or an external consultant to the client organisation. Efficiently planning and implementing the procurement strategy is described in the context of resource planning, organisational structure and contractual arrangements. Systems and controls are discussed in the context of time, cost and quality. The chapter brings together the essence of an effective project execution plan.

1.13 Facilities management: assessing the strategic value

The complexities of measuring the value of the facilities management contribution to a client's business is discussed in Chapter 13 by critiquing the limitations of current approaches to measuring facilities management performance. A review of the facilities management literature indicates that much of the current emphasis on performance measurement is driven by a general comparability of indicators, which are facilities-orientated rather than business-orientated. To date most of the published indicators use quantitative assessments of distinguishable and measurable dimensions of the facilities or the facilities function. The chapter discusses the significance of facilities management decisions on overall business success and the dangers of being unaware of this significance. This implies that if the business view of facilities management is to develop then this may have to be led by a corresponding broadening of what facilitator managers view as their consultancy service to clients.

The chapter emphasises that if the performance assessment of facilities management is to expose the usefulness of facilities management to the business, then there needs to be a more overt recognition of the relevance of the business environment to the role of facilities management. The question of the variability in

organisational capability to properly exploit the potential of facilities management has rarely been discussed. This chapter addresses this issue by looking at five example scenarios.

The benefit of facilities management, in terms of business value, may reside in its usefulness when applied strategically for competitive advantage. Therefore, the key performance indicators should be directed towards business outcomes, for example agility, flexibility, business continuity and/or transition management. However, the nearer facilities management comes to achieving strategic usefulness, the more complex the method of measurement, and herein lies the dilemma.

1.14 Post-occupancy evaluation

The growth of the facilities management market over the last two decades has given credence to the need for organisations to strategically plan their facilities' or workplace requirements. Chapter 14 quotes a definition of post-occupancy evaluation as being the process of evaluating buildings, occupied for some time, in a systematic and rigorous manner. Post-occupancy evaluation focuses on the building, its occupants and their needs and thus provides insights into the consequences of past design decisions and resulting building performance. This knowledge forms a sound basis for creating better buildings in the future. The issue is whether post-occupancy evaluation is only used as a recording tool for informing future decision-making or as a tool for recording the status quo and highlighting opportunities for building performance improvements.

Buildings provide the infrastructure for some aspect of social or commercial human activity and, as physical assets, are durable products that require life-cycle management. Ultimately, the effective management of buildings is about the fit between the facility and its users. In the context of a commercial activity it is recognised that buildings have a much longer life than most assets in business. The building's value is represented by its effectiveness as a supporting resource in the overall value chain of an organisation's productive process. Chapter 14 describes the assets of the business environment as being: financial performance, physical performance, functional performance and service quality performance. Post-occupancy evaluation, as a tool, has evolved to measure these with the aim of gaining a better understanding between form, functions, work spaces, tasks, organisational subculture and the working environment.

1.15 Sustainable building maintenance: challenges for property managers

Chapter 15 quotes both the British Standard and Chartered Institute of Building definitions of maintenance and refurbishment which have a common thread in terms of the management of a facility in such a way that it is retained in an acceptable condition conducive with the activity of the occupier. As in the facilities management chapter this implies an understanding of the activity of the occupier and, in a business context, the strategic demands that they will make on the building. In this respect the built asset becomes a strategic resource that has to be managed within the broader context of the organisation's strategic plan. Performance measures of buildings in use are required and are described as financial benchmarks, performance benchmarks and disruption benchmarks. The chapter concludes by emphasising the need for a strategic fit between the organisation and the long-term planning of maintenance and refurbishment.

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2

Building the Business Value Case

Steven Male

2.1 Introduction

The aim of this chapter is to explore issues surrounding the development of value options and opportunities on projects. In order to achieve this, a number of key terms are presented initially that will be used throughout this chapter. The chapter draws together work on the strategic phase of projects and the project value chain (Male & Kelly, 1992); the recognition of a two-stage briefing process (Latham, 1994), and collaborative work with a number of researchers from industry (Bell, 1994; Standing, 1999; Graham, 2001) and from academia (Moussa, 1999; Woodhead, 1999). The chapter also draws on an extensive action research programme of studies by Male and Kelly that has been under way since the early 1990s, encompassing value management and value engineering studies, procurement studies that have involved PFI, prime contracting, partnering and other procurement routes, and, finally, organisational/business development projects.

Bell (1994) discussed in some detail the concept of value. Historically it has been presented within an economic perspective in terms of the ratio of costs to benefits and where the primary mechanism to communicate the impact of value decisions has been in monetary terms. However, other authors have presented value in terms of use qualities, esteem features linked to ownership characteristics; exchange properties; cost characteristics, normally the sum of labour, material and other costs. Value can be looked at from the producer's or consumer's/user's side and it has also been related to functional aspects of use. Value has a utility dimension. Bell (1994) captured the essence of this range of factors when she defined value as the intrinsic property to satisfy. In this context it is linked to individuals or groups of individuals and therefore introduces a further issue – that of complexity. Value is therefore dependent on the complexity of perceptions involved, the context within which judgements about value are made, the number of interfaces that exist between individuals, groups of individuals, or organisational

units deciding on best value and also the number of organisations involved in the judgement process.

Borrowing terminology from the discipline of 'systems thinking' (Checkland, 1981), a value system comprises people making judgements about best value and value for money. A value system is a complex, organised whole existing in an environment, and is delineated from other value systems by a boundary. It is structured hierarchically and has a common purpose and objectives that can, at times, be in conflict when judging best value and value for money.

The strategic phase of projects and the strategic development process for projects is set out in Fig. 2.1. Client organisations have a strategic direction, normally worked out and expressed in the form of either a corporate plan, for larger organisations made up of many businesses, or a business plan for smaller, single-entity businesses. It is often possible that due to the hierarchical structure of large corporate organisations a project or projects may start their life at corporate level and are then taken up at individual business level or vice versa. Equally, in larger organisations with more autonomous separate businesses, a project or projects may start life at this level, with minimal if any input from corporate level. For smaller organisations projects will remain within the single-entity business. Much will depend on the size, complexity and strategic importance of the project(s) to the corporate and business levels, the investment

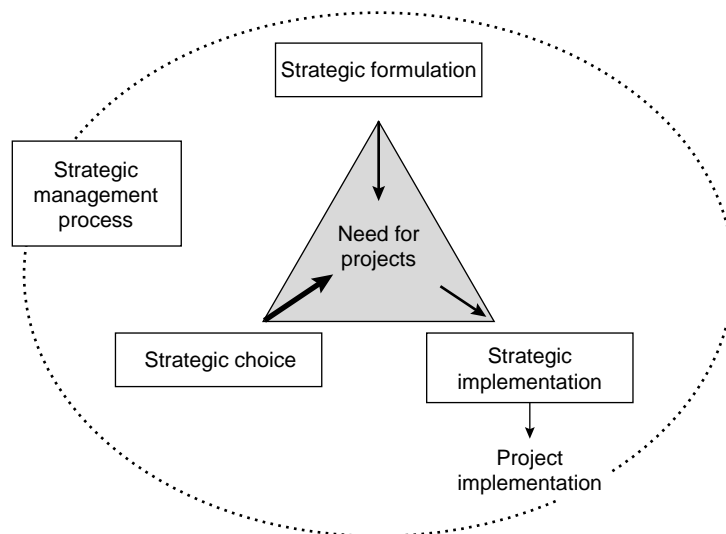


Fig. 2.1 The strategic development of projects.

required and the policy and operating procedures for handling such projects. This sets the parameters for the project development process and the strategic phase of projects.

Recent work by Graham (2001) has indicated clearly that there is a difference between the start of the strategic phase of a project and the start of the project. For privately financed international water infrastructure projects Graham indicated that the gestation of projects during the strategic phase could take many years. Hillebrandt (1984) reported a range of time periods for projects to emerge into the construction industry and Woodhead (1999), in his recent research, indicated that time spans for the projects that he studied varied between six months and three years, depending on the type of client. Often projects will have gone through a variety of changes within the client organisation before they emerge as projects with a clear momentum ready for the industry to commence its work. They will have a history that they bring into the present and that may also influence the future. The strategic phase of the project development process is therefore often messy, fuzzy or ill-defined and can be difficult to pin down in terms of a clear start date for a particular project. The next section looks at client requirements and the client value system as part of the strategic phase of projects.

2.2 Client requirements and the client value system

Large, regular-procuring clients of the construction industry are increasingly pursuing innovative approaches to the way in which their projects are planned, designed and delivered to facilitate their business strategies. They are looking for a structured method to manage their project process within the context of their organisational business strategy, and also work closely with the supply chain to maximise value and achieve continuous improvement in construction performance.

As a result, the construction industry is currently going through major change, much of that driven by regular-procuring clients and also through initiatives such as the Latham Report (1994), the Egan Report (1998), The Movement for Innovation (M4I) and the Construction Best Practice Programmes. There is a clear determination by policy-makers at all levels in the industry that things have to change. Regular-procuring clients are already pressurising the industry for a 'one-stop shop' service, coupled with cost and time certainty in the delivery and they are very vociferous in their demands of the industry to meet their expectations as customers. Newer procurement routes such as the private finance initiative

(PFI) and prime contracting, as well as more integrated, team-based routes such as management contracting, construction management and partnering are attempts at drawing together design and construction interfaces and responsibilities. PFI and prime contracting also incorporate the operational phase. Taking a cross-cultural perspective, an analysis undertaken by Moussa (1999) of the requirements of regular-procuring clients in the European and North American airport industries, indicated that the North American airport clients she had investigated had experienced significant changes with project delivery during the past three to five years. Figure 2.2 sets out the lessons learnt from North American clients, whilst Table 2.1 indicates the stated needs of European airport clients and how their North American counterparts have responded. Clients in the UK construction industry are now implementing many of the solutions adopted by North American clients.

Client requirements for projects, the industry within which they operate, or, for example, within a market sector, such as airports infrastructure development, coupled with the client organisation's culture, history, strategic and tactical management systems and procedures will all combine to create a client 'value system' that will impinge directly on, and influence, the project development and delivery process. The client value system is discussed in more detail below.

2.3 Client value system

The client's value system comprises a number of interacting parts derived from the structure and strategic management process operated by the client organisation itself. The discussion on the client value system will differentiate between corporate and business value, as indicated in Fig. 2.3 and is the subject of the next two sections.

Corporate value

Corporate value is used here to define the value requirements that exist at corporate level within a client organisation that has a diverse organisational structure. This may often reflect, therefore, requirements that stem from across a number of discrete business units or across a number of high-profile corporate projects. At this level, the key requirements will be to align projects with corporate and/or business unit missions and objectives.

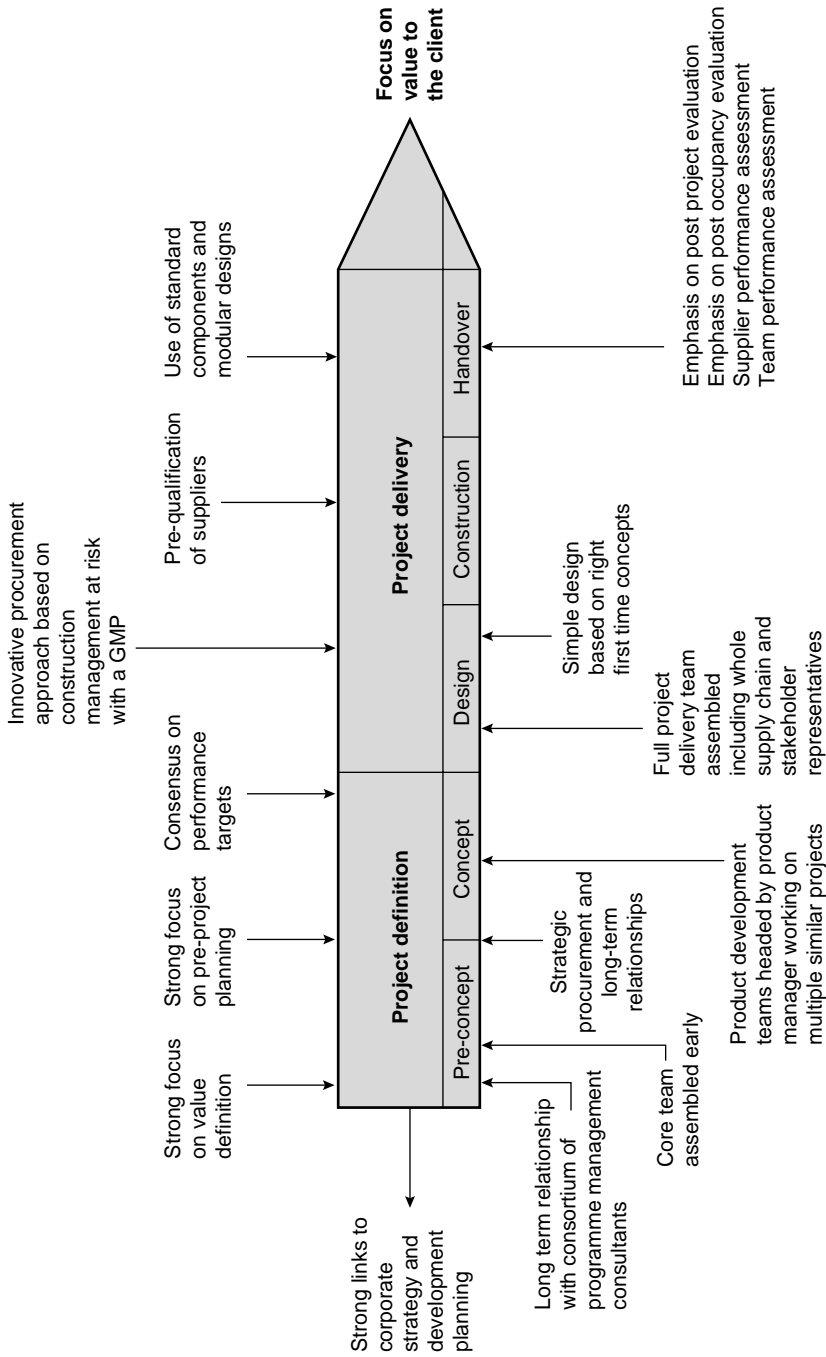


Fig. 2.2 The learning points identified from North American airport clients.