The construction industry faces continual challenges and demands, due to market conditions and coercion by governments, for improvements in safety, quality and cost control, and in the avoidance of contractual disputes. To meet these challenges construction enterprises need to constantly seek new directions and business models in construction management. A number of tools, methods and concepts have been developed and advocated as aids to achieving improved performance, but many in the industry find them confusing or are sceptical of their relevance.

The third edition of Construction Management: New Directions brings together, in a single volume, detailed discussion of a range of contemporary management concepts which are relevant to the construction industry, including strategic management, benchmarking, reengineering, partnering and alliancing, enterprise risk management, total safety management, total quality management, value management and constructability. It provides a straightforward, accessible and objective account of these concepts, showing how they interrelate and can be used to improve the performance of the construction firm.

This research-based text will be essential reading for industry leaders and practitioners, as well as researchers and postgraduate and senior undergraduate students.

From a review of the previous edition

“I AM IN NO DOUBT THAT THIS BOOK WILL QUICKLY BECOME A FAVOURITE AMONG STUDENTS AND PRACTITIONERS ALIKE”

Construction Manager

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In the preface to the first edition of *Construction Management: New Directions* we began with the rather bold statement that the book was meant to be topical. At the time of writing the first edition we realised that if the book was a success, then inevitably there would be succeeding editions. The book has indeed proved to be topical enough to justify the production of a second edition, and now a third edition. The primary reason for writing this book was the perceived need to bring together, in a single volume, contemporary management concepts which are relevant to the construction industry.

We realise that a book which attempts to bring together, in one volume, a wide spectrum of construction management concepts is liable to be guilty of the sins of omission and we quite happily confess to these sins. In selecting the concepts covered in this edition we have, perhaps rather egotistically, followed our own research interests on the assumption these will also be seen as relevant to our readers, and in this respect we have also been guided by the feedback that we have received for the previous editions. In making our selection, we have worked on the principle of omitting specialist areas such as information technology (IT) and Building Information Modeling (BIM) which are now rapidly developing fields in the architecture, engineering, and construction (AEC) industry and which have their own specialised publications [1]. The second edition (which was published some 10 years ago) included a chapter on supply chain management on the basis that it was, at that time, an emerging management tool. Now that supply chain management is well established as a discipline in its own right, including the introduction of an international journal of construction supply chain management, we direct interested readers to specialised publications in this field, for example *Construction Supply Chain Economics* by London [2].

A central theme that underpinned the first edition, and which still holds good, was the need to recognise cultural differences when importing or transplanting management concepts. We identified distinct cultural differences between the United States, Europe and Australia in their approach to concepts such as value management, total quality management, partnering and reengineering. By way of example, we described that when British companies tried to use the US system of value engineering they found initially that they could not make it work until the approach was modified to suit the UK professional environment. This is only one of many examples. It seems inevitable that the spread of Western management concepts into Asia will produce interesting sets of hybridised management concepts generated in response to differing cultural mores. The introduction of a ‘tangible construction market’ in China
is an interesting and novel concept. In future, the flow of concepts may not only be from West to East but also in the reverse direction [3].

The original book was first published in 1997, followed by a second edition in 2002. During the 5-year period between the first and second editions the construction industry in developed countries enjoyed a period of steady growth. For example, in the UK the value of construction output for all work increased from 66 billion pounds to 85 billion pounds from 1997 to 2002. This growth continued more or less unabated until the impact of the global financial crisis (GFC) occurred in 2008 [4]. However, although the construction industry output for the UK is still at a higher level than post 2002, there is a clear recent decline in activity in the UK due to the global financial crisis which is mirrored in other economies throughout Europe, the United States and Australia. The following comment from Davis Langdon [5] echoes the sentiments of many economic commentators in the construction sector: ‘2010 was another difficult year for construction globally. Overall, world construction spending declined for the third consecutive year falling by 1% to $4.4 trillion (US). World construction spending growth is not expected to return until 2011, although it is forecast to be below 1% overall. Some commentators are even less sanguine about a construction recovery, particularly in the UK where Reuters [6] uses the term ‘stagnation fears’. The economic backdrop to the third edition is therefore quite different to editions one and two. In this and in previous editions, we describe the numerous attempts by successive governments to change the culture of the industry. It is perhaps premature to speculate as to whether the GFC and economic imperatives will accelerate cultural change rather than government intervention. In any event, our view is that construction enterprises need to be constantly seeking new directions in construction management whether due to market demands or coercion by government agencies.

In writing this edition, the ever-present challenge has been for us to remain as detached and objective as possible. The intention of this book is not to champion any particular management concept in preference to another. Indeed, many of the concepts are well able to champion their own cause. The problem for the decision taker still remains in being able to relate to the many construction management concepts which, at times, appear to be in competition with one another for the decision taker’s attention. The purpose of this book is to provide a framework in which concepts are viewed as synergistic rather than mutually exclusive.

We are aware, from conversations with industry practitioners and academics, that a good deal of healthy scepticism abounds with respect to the efficacy of modern management concepts. Many practitioners would be sympathetic to Rigby’s view [7] that management concepts pass through a sequence of six phases. These are:

1. deficiency of previous concepts
2. discovery or re-discovery of a solution
3. euphoria as early success stories are publicised
4. over extension due to the excessive application of the technique to inappropriate situations
5. derision as examples of failure grow too large to be ignored
6. final abandonment as the technique is discarded or replaced with a new technique.

Whilst we do not subscribe to this viewpoint, we feel that it is important to explore genuine cultural shifts in the industry as opposed to that which can simply be trendy ideas. We are not alone in making this distinction. Godfrey [8] was also alert to this issue, arguing that 'The use of partnering is growing fast, but there is a danger that this will be merely a passing fad.' Loosemore et al. also refer to the transient nature of management ‘fads’ [9].

What we have attempted to do in this text is to give a straightforward and objective account of our chosen concepts. Throughout the book we have diligently tried to differentiate between ‘concept’ as defined in Websters [10] as an abstract idea generalised from particular instances, and ‘technique’, defined as a method of accomplishing a desired aim. The book deals in detail with both concepts and techniques; the philosophical leaning is however, towards the conceptual.

We believe that this book is suitable for a wide range of readership, from industry leaders and practitioners to PhD, postgraduate and senior undergraduate students who are interested in current and future directions of construction management thinking. Topics such as the culture of the construction industry, strategic management, enterprise risk management, benchmarking and reengineering should engage industry leaders, whilst other topics such as enterprise risk management, total safety management, value management and constructability should be of particular interest to construction/project management personnel. A recurring theme in topics such as total safety management, enterprise risk management, value management and constructability is the need to consider the building life cycle at the design stage. These and other topics should therefore be of interest to design professionals in helping to improve the management of design, leading to better value for money and improved buildability of the building product whilst at the same time minimising safety risks.

References

We would like to thank: Professor Takayaki Minato of Tokai University, Japan, and Professor John Kelly, formerly of Glasgow Caledonian University, Scotland, for their value management case studies outlined in Chapter 9; Professor Vernon Ireland for allowing us to use the T40 case study material; Dr Selwyn Tucker and his colleagues, formerly of CSIRO, Victoria, Australia, for allowing us access to their extensive writings on reengineering; Professor Tony Sidwell and his colleagues at the Construction Industry Institute, Australia, for their input both on constructability and partnering; Glen Peters for allowing the use of his benchmarking survey; and Professor Chen Swee Eng, Dr Rod Gameson and colleagues formerly at the University of Newcastle for their input on constructability, decision support systems and alliancing and Professor Derek Walker for his advice on recent developments in alliancing in Australia; Rob Leslie-Carter for his insights and material assistance on the Arup approach to strategic management.

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We would like to express our gratitude to the original co-author of the first and second editions, Dr Angela Palmer. We would also like to thank Professor Kerry London for her contributing chapter on supply chain management in the book’s second edition.

The nature of this book has meant that we have drawn on a large number of other sources and we acknowledge our indebtedness to many commentators in construction management and management science who are too numerous to mention by name, but without whom this book could not have been written.

Acknowledgements
The construction industry has long been exhorted to change its ways and, in the UK in particular, there has been a seemingly endless procession of reports and enquiries ranging from the Simon Report [1], the Emmerson Report [2], the Banwell Report [3], the Latham Report [4], and the Egan Report [5]. In addition, reports such as ‘A Fresh Look at the UK and US Building Industries’ [6], ‘Controlling the Upwards Spiral: Construction Performance and Cost in the UK and Mainland Europe’ [7], ‘Building Britain 2001’ [8], ‘Strategies for the European Construction Sector: A Programme for Change’ [9], ‘UK Industry Performance Report’ [10] and, more recently, the report provocatively titled ‘Never Waste a Good Crisis’ [11] have increased pressure for change in the UK construction industry. (For readers interested in gaining a historical perspective on reports and inquiries into the UK construction industry during the twentieth century we would recommend the publication Construction Reports 1994–1998 edited by Murray and Langford [12].)

In Australia, pressure has been exerted through the ‘Gyles Royal Commission into Productivity in the Building Industry in New South Wales’ [13] and the ‘Construction Industry Development Agency’s Reform Strategy’ [14], both of which preceded Latham. An additional ‘Royal Commission into the Australian Building and Construction Industry’ was conducted by Cole from 2001 to 2003 [15]. One recommendation of this Royal Commission was the establishment of a special regulatory authority called the Australian Building and Construction Commission (ABCC). This recommendation was implemented in 2005 and, although there has been a change of political parties since the

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introduction of the Commission, the ABCC is still in existence at the time of writing. The reason for highlighting this issue is that as far as the Australian federal government is concerned there is a perceived need to have a different set of rules for building employees compared to workers in all other sectors. One can infer from this rather unusual set of circumstances that the building and construction sector, as far as the Australian federal government is concerned, is still in need of cultural change.

Powell [16], in his study of the economic history of the British building industry 1815 to 1979, comments, not unkindly, that the period of 1940 to 1973 was when the ‘work horse learned to canter’. Perhaps, to continue Powell’s analogy, the twenty-first century is when, as a result of vigorous prompting by observers such as Egan, Latham, Gyles and Cole and, perhaps more forcibly, by the increasing competitiveness of the market, the workhorse will move from a canter to a gallop.

The dominant message from both Latham’s final report and Gyles’s Royal Commission report, and indeed of most of the enquiries into the construction industry, is the key role of the client in activating a cultural shift in the industry through the adoption of modern management concepts. This is summarised by Latham who states that ‘implementation begins with clients. Clients are at the core of the process and their needs must be met by industry’.

Latham then goes on to recommend that ‘Government should commit itself to being a best practice client. It should provide its staff with the training necessary to achieve this and establish benchmarking arrangements to provide pressure for continuing improvements in performance’. More recently, however, Wolstenholme [11] has expressed an opposing view when he states ‘We believe that the era of client-led change is over, at least for the moment, and that it is now time for the supply side to demonstrate how it can create additional economic; social and environmental value through innovation, collaboration and integrated working – in short, the principles outlined in Rethinking Construction, i.e. the Egan Report. Clients should focus instead on professionalising their procurement practices to reward suppliers who deliver value-based solutions. Government, as a client, needs to understand the enlightened thinking that better and more intelligent designs improve patients’ recovery in hospitals and learning outputs in schools. So, rather than reduce the number of schools and hospitals being built, it must sponsor smarter and more productive solutions and reduce the amount of money wasted on the procurement process. For Government as a policy maker, the challenge is to create an environment that incentivises innovation and speeds up the modernisation process’.

Our position is that whether the need for a cultural change in the industry is demand driven or supply driven it is essential to grasp the need for ‘value creation in the built environment over the whole life cycle of an asset’ [11]. We are further of the opinion that the adoption of the key management concepts contained in this book could be a useful pointer towards achieving this goal.
In 2002, in the second edition of this book, we made the statement that it would be fair to say that none of the concepts contained in the book at that time were, as yet, commonplace in the industry. Interestingly, Wolstenholme writing in 2009 makes a somewhat similar statement to the effect that ‘few of the Egan targets have been met in full, while most have fallen considerably short’ [11].

There are probably several reasons why many of the concepts in this book are not clearly understood and, hence, have yet to be adopted by the industry at large. One reason could simply lie in the fact that, hitherto, a balanced description of the concepts has not been presented in toto, and we have tried to redress this. Another and more complex reason might lie in the fact that many, if not all, of the concepts under consideration are philosophically grounded, if not in systems theory then at least in a holistic approach. We would contend that this common parentage has given rise to difficulties in terms of identifying the concepts as individual branches of the same family tree. This lack of differentiation between current concepts is typified in comments such as ‘constructability is not just value engineering or value management’, [17] or ‘is reengineering replacing total quality?’ [18] or, more confusingly, ‘as partnering is to the project, total quality management is to the construction company’ [19].

For many years, critics of the construction industry have dwelt on the perceived problems of fragmentation and compartmentalisation. Many of the ills which have beset the industry have been blamed on the inability of the industry to see the big picture. Many of the advocates of the techniques covered in this book claim that ‘their’ concept rectifies this. For example, Hellard [20] advocates that ‘Partnering will certainly be the key to the holistic approach which must first be brought to the organisation and then incorporated into the team performance with other sub-contractors and the main contractor’.

We strongly endorse Hellard’s view that a decision which is undertaken at ‘organisational’ (‘enterprise’ in our terminology) level will clearly have a flow-on effect to project level. Indeed, most commentators would subscribe to the view that the management culture at project level is predetermined by the culture at enterprise level. Inevitably, there is a continuum between enterprise and project. For example, the International Standards Organisation ISO31000 [21] applies to both enterprise and project levels. Again, as mentioned in the Preface, our selection of concepts does not claim to be exhaustive. We have revisited concepts included in previous editions to ensure that they are contemporary and have also introduced new chapters where we felt that management thinking has progressed in the intervening years between editions two and three.

All of the concepts in the book have the underlying ‘big picture’ theme. We have arranged the sequencing of topics more or less in sequence by starting with the really big picture in Strategic Management and concluding with the construction-specific concept of Constructability; however, this structure should be seen as, at best, tenuous. Although each topic can be read as a
stand-alone subject we hope that readers will be encouraged to read the book in its entirety and by doing so may arrive at their own conclusions (which may not coincide with our views) as to how the concepts are linked.

**The book’s contents**

**Strategic management**

It is an old maxim that ‘strategy decides either winning or losing a battle’. A construction enterprise is no exception to the rule that a sound strategy is required in order to win projects and develop its business interests. The field of strategic management has grown quickly since its formal inception in the 1970s. This chapter discusses strategic management with specific reference to the construction industry, including the origins of strategic management, its application, the essential elements of strategic management that apply to a construction organisation and how to develop and implement strategies for a construction firm. This chapter also discusses the paradoxes of strategic management, relevant concepts such as change management and stakeholder management, and explains how to link actions with strategic goals. Finally, the chapter presents a current case study followed by a suggested integrated construction strategic management framework.

**Benchmarking**

Benchmarking is a concept aiming at improving the competitiveness of organisations through the examination and refinement of their business processes. The concept has its origins in the Xerox Corporation, who stripped down copiers manufactured by competitors and compared them to their own. They later extended this comparison to include the business processes of their competitors. Chapter 3 looks at types of benchmarking, the process of benchmarking, the benchmarking team and the benchmarking code of conduct. The chapter concludes by illustrating a simple case study of benchmarking: the customer focus of a national house builder against a national car manufacturer.

**Reengineering**

When first introduced, reengineering was hailed as a management revolution which could have repercussions on the scale of the industrial revolution that followed Adam Smith’s Wealth of Nations. The proponents of business process reengineering claimed quite dramatic results following its introduction. The opponents of reengineering also claimed quite spectacular disasters. The following aspects of reengineering are covered: origins; reengineering in a construction industry context; goals; methodology; implementation; time and cost saving; pitfalls; IT and reengineering; and the European perspective.
Chapter 4 contains a detailed case study, known as the T40 project, describing the initiation, planning and implementation of a process reengineering in the Australian construction industry. The objective of the project was the reduction of construction process time by 40%.

Partnering and alliancing

The concept of formal partnering is of relatively recent origin, dating back to the mid-1980s. The concept was developed in the United States and has spread to other countries, including Australia and New Zealand in the southern hemisphere and also to the UK. Parties adopting partnering resolve to move away from the traditional adversarial relationships to a ‘win–win’ situation. Partnering can be undertaken either at the level of a single project and be of relatively short duration, or can be of a semi-permanent nature at a strategic level. Chapter 5 traces: the origins of partnering; partnering in a construction industry context; the goals of partnering; categories of partnering, project and strategic; the participants; commitment; the partnering process; how to conduct partnering workshops; partnering charters; the pitfalls of partnering; limits to partnering; legal and contractual implications of partnering; and dispute resolution. A substantial part of Chapter 5 is devoted to the exploration of ‘alliancing’ as a natural progression from partnering. Alliancing has been hailed as one of the most dynamic features of modern corporate development. Its uptake by the building industry is now significant. It could be argued that alliancing combines the cultural features of partnering with the cutting edge of economic rationalism.

Enterprise risk management

Chapter 6 makes the case that, while much research has been focused on project risk management, much less attention has been paid to developing theory and implementing enterprise risk management (ERM) in the construction industry. This chapter comprehensively reviews current ERM literature, and explains how an enterprise risk management maturity model (ERM3) was developed for implementation in the construction industry. The model includes five attributes, namely: management perspectives (people and leadership) in relation to risk; organisational risk culture; identifying risks; analysing risks and standardised risk management processes. This model was validated using selected risk management experts from a multinational construction sector enterprise. The chapter concludes by describing how organisations can develop strategies to manage risk at an enterprise level.

Total safety management

While construction safety is not new in itself, most previous research has been focused on improving construction site conditions (such as safe work method
statement and site hazard management) or human factors (such as behaviour-based safety). This chapter, total safety management, or TSM, addresses construction safety from both perspectives – the science and art of safety management. In the science of safety management, the chapter provides a new method to assess and mitigate safety risk at project design stage. The principles of safety assessment at design are first discussed, followed by case studies that demonstrate how the concept has been applied in building projects' design and construction, as well as the implication of such applications. Regarding the art of safety management, this chapter discusses a new concept of 'safety culture maturity'. Following a comprehensive review of the current literature on maturity models, this chapter presents the criteria for a safety culture maturity model, which consists of five subcultures, namely Just Culture, Reporting Culture, Informed Culture, Flexible Culture and Learning Culture, with each sub-culture having three dimensions: psychological, behavioural and corporation. The maturity is measured using a 5-level instrument: Level 1 Emerging; Level 2 Managing; Level 3 Involving; Level 4 Cooperating; and Level 5 Continuously Improving. This chapter argues that to achieve the aim of zero incident and zero harm in a construction project life cycle, a TSM approach must be designed and implemented as part of construction enterprise decision-making and project management processes.

Total quality management

Total quality management, or TQM, is a concept aimed at improving the organisation through increased customer focus, integration of the organisation's processes and a philosophy of continuous improvement. Chapter 8 discusses definitions of TQM; historical development; the need for a cultural change in the construction industry; customer focus; integration; continuous improvement; quality costs; and quality standards. Finally, Chapter 8 briefly examines the array of quality methods that are currently available.

Value management

Value management was developed by the United States' manufacturing industry during World War II. Its aim was to improve the value of goods by concentrating on the functions that products perform. It was so successful in manufacturing that the United States Department of Defense began using it in the construction industry and it was around this time that an interest in value management was shown by the British construction industry. Chapter 9 traces the historical development of value management; the use of function analysis; organisation of value management studies; the evaluation of value management proposals; the American; British; Japanese and Australian systems of value management. The chapter ends by analysing why these systems are different and examines some of the major cultural influences on value management development.
Constructability

Constructability is the only concept in this book which is the exclusive domain of the construction industry. Constructability is concerned with how decisions taken during the procurement process facilitate the ease of construction and quality of the completed project. From its inception in the early 1980s, constructability has moved from its original narrow focus to incorporate decision support theory and decision support systems. The following aspects of constructability are covered: its origins; scope and goals; implementation; constructability in practice; the building – in use; good and bad constructability – indicators of success; and quantifying the benefits of constructability. Chapter 10 concludes by distinguishing between constructability and good multidisciplinary team working.

Linking the concepts

Chapter 11 explores the relationships between the various concepts. The case is made that the current raft of construction management concepts owes its parentage to systems theory and a systems approach. Rather surprisingly, the use of the systems approach has not had the effect of bringing the concepts together but rather the opposite. A conceptual model is proposed which illustrates the relationships of the concepts, one to the other, based on the use of ‘gentle guidelines’ from soft systems thinking.

The chapters are arranged in a roughly chronological order although, as readers will soon discover, the precise dating of the emergence of a concept is sometimes difficult, and in any event is usually of no particular significance. Each chapter can be read as a stand-alone topic although, like all authors, we would like to think that the book will be read from cover to cover. Certainly the arguments developed in Chapter 11 will only consolidate after reading Chapters 2 to 10.

References


Introduction

A continuing theme which readers will observe throughout this text is that the construction industry needs to be viewed as a part of, not apart from, the business community as a whole. Certainly, the construction industry is a major economic driver in both developed and developing countries. The construction sector across the world contributes significantly to a nation’s employment and GDP growth. Moreover, in many instances, the construction sector has been one of the major rescue strategies when financial crises or economic downturns hit a nation’s economy and development. For example, in 2008 the Australian government injected AU$16.2 billion [1] as a major component of the nation’s economic stimulus package in the form of the BER (Building the Education Revolution) programme to upgrade the buildings and other learning facilities of its entire education sector. The aim of this BER strategy was to stimulate Australia’s national economy. Similar decisions and actions were taken by the US government during that time to invest heavily in the US infrastructure development (American Recovery and Reinvestment Act 2009). As with any major business, construction firms are influenced by a number of internal and external factors. Two major factors are: firstly, natural competition which involves the displacement of firms whose characteristics are less well suited to the prevailing circumstances relative to firms that are better suited; and, secondly, strategic competition involving conscious and planned adjustment by firms to improve their competitive position vis-à-vis rivals [2].
In addition, construction firms are characterised by competitive tendering and small profit margins, whilst having to be able to respond to fluctuating market demands in order to survive [3]. Therefore, as for any business, construction enterprises require high-level strategic planning, decision making and operational implementation. On the other hand, a construction business has its unique features in that it is project based and work is mainly obtained through competitive tendering or a negotiation process. As such, there is a need to understand the peculiarities of a construction business’s stakeholders.

In this chapter, we explain the fundamentals of strategic management with a specific focus on its application to the construction business. A case study of an international construction industry player is used by way of illustration. This chapter is pivotal in the exploration of the other construction management principles and techniques covered by this text.

Overview

A brief history of its development

In simple terms, a strategy is a plan of action designed to achieve a long-term or overall aim [4]. A more comprehensive definition was provided by Johnson and Scholes, cited by Price and Newson [5], that:

… strategy is the direction and scope of an organisation over the long term: which achieves advantage for the organisation through its configuration of resources within a changing environment, to meet the needs of markets and to fulfil stakeholder expectations.

While mission is the reason why an organisation exists and vision is the ideal state of the organisation in the future, strategy defines how to get towards the ‘ideal’ state described in the vision statement. According to De Wit and Meyer [6], there are three interactive dimensions of a strategy: strategy context, strategy contents and strategy process, where the strategy process also includes strategic analysis, strategy formulation and strategy implementation. Strategic management is a combination of managerial decisions and actions that determines the long-term performance of an organisation. Strategic management can be interpreted in different ways from different perspectives. An organisation’s ability to align resources and activities with strategic objectives should result in success in the business [7].

The field of strategic management has grown quickly since its formal inception in the late 1970s and is now both broad and diverse in terms of its coverage [8]. Strategic management experienced a theoretical renaissance of sorts during the 1980s with the most notable contributors being: (1) Porter’s [9−11] five-force framework of industry effects; (2) Williamson’s [12, 13] model of transaction cost economics; and (3) Wernerfelt’s [14] resources-based view on
firm-specific qualities. Porter's five-force framework—buyer power, supplier power, threat of new entrants, product substitution and jockeying for position—can be used to understand the structure of an industry and is a useful analytical tool for assessing an industry’s attractiveness and facilitating competitor analysis. The main focus of Porter’s model was the environment and its relationship to a firm. Williamson’s transaction cost economics theory explains why firms exist in different forms and highlights the relationship between the multidivisional structure and the firm’s performance. One such example is strategic partnering (alliancing) or a joint venture for international modes of market entry. Wernerfelt’s resources-based theory focused on the relationship between a firm’s resources and performance, and includes the resource-based view of the firm, dynamic capability and a knowledge-based approach. Built on to the resource-based theory of competitive advantage came the development of the theory of invisible assets and competence-based theories of corporate diversification.

For readers who are interested in gaining further understanding in the field of strategic management, the following four articles are recommended. The first paper is by Hoskisson (1999) [15] entitled ‘Theory and research in strategic management: Swings of a pendulum.’ This paper reviewed the development of the field at the turn of the twentieth century. It examines the field’s early development and the primary theoretical and methodological bases through its history. Research methodologies used in strategic management research are described with the conclusion that research methodologies are becoming increasingly sophisticated and now frequently combine both quantitative and qualitative approaches and unique and new statistical tools.

The second paper is by Nag et al. [16]: ‘What is strategic management, really? Inductive derivation of a consensus definition of the field.’ This is an impressive piece of research using empirical data. Having developed a conceptual understanding of past efforts to define the field, the authors surveyed 585 strategic management authors to derive a consensual implicit definition of the field, which resulted a total of 385 articles for further analysis. Following this, the authors conducted content analysis of the 385 articles to extract the distinctive lexicon of strategic management, and this process generated 54 words that formed the basis for imputing a consensual definition. Finally, 57 authors were surveyed to derive an explicit definition of the strategic management field.

The third paper is by Furrer et al. [7]: ‘The structure and evolution of the strategic management field: A content analysis of 26 years of strategic management research.’ As the paper title implies, the authors, through the analysis of 26 years of strategic management research published in various management journals including Academy of Management Journal, Academy of Management Review, Administrative Science Quarterly and Strategic Management Journal, studied the relationships between the subfields of strategic management, and provided a map of keywords and authors, as well as a framework to track the literature. They also discussed the future pathways of this field.
The fourth paper is by Ketchen et al. entitled ‘Research methodology in strategic management: Past accomplishments and future challenges’ [8]. As the title implies, this paper is specifically focused on research methods/methodologies used in strategic management research. After defining the domain of strategic management, the authors undertook a statistical and content analysis of a very large number of articles published in the Strategic Management Journal from 1980 to 2004 (25 years), to understand the evolution of methods used in strategic management. The authors also analysed the challenges addressed by the feature topic articles. Such challenges included: (1) the need to better tap into the motives, preferences and decisions of the executives charged with managing firms strategically; (2) improving the assessment of levels of analysis; and (3) incorporating developments from fields other than those that are frequent resources for strategy research, such as economics and psychology.

Strategic management process

A strategic management process is a planning process in which managers set the organisation’s general directions and objectives, formulate a specific strategy, plan and carry out the strategy’s implementation, monitor results and make necessary adjustments. The first step is to set the goals for the organisation, which must be challenging but attainable. The following steps are typical of what would be undertaken when setting organisational goals:

1. Review of the organisation’s current situation, including its mission and vision statement.
2. Benchmark the organisation’s performance against competitors.
3. Identify gaps.
4. Develop and determine goals internally and when necessary with external stakeholders.
5. Assess the resources available for attaining the goals.
6. Record and communicate the goals with stakeholders.
7. Review results and assess whether the goals have been met or exceeded.
8. Document lessons learned from the goal-setting process.

Benchmarking as a method can be used to identify the gaps between the organisation and its competitors and to find out how the gaps could be closed. Once the gap is identified, goals can be set to close the gap. The concept, process and techniques of benchmarking are discussed in detail in Chapter 3 Benchmarking.

During this process, it is necessary to scan the external business environment to understand the opportunities and threats within the general and specific operations. There are several analytical techniques, such as product life cycle analysis, portfolio analysis and Porter’s five-force framework, that could be used for scanning the external environment. It is also necessary to conduct
an internal analysis to assess the organisation's strengths and weaknesses. Several tools, such as core competence framework, resource analysis framework and value chain framework, can be used when undertaking an internal analysis. Together, the external environmental scanning and internal analysis are commonly known as SWOT analysis (Strength, Weakness, Opportunity and Threat analysis). A simple SWOT analysis matrix is shown in Figure 2.1.

Lu [17] proposed an improved SWOT approach for conducting strategic planning, where he applied a simple, rationally quantitative model as an augmented SWOT. In the proposed model, he used a mathematical approach including the ‘maximum sub-array’ method, fuzzy mathematics, and heuristic rules, to bring into focus the most influential factors concerning a strategic planning situation and inform the decision maker where particular consideration should be given.

In his five-force framework, Porter [10] proposed that a company needs to determine its competitive strategy; in other words, how the company is going to compete and achieve its strategic goals and vision, and fulfil its mission. The generic strategies proposed by Porter were cost leadership and differentiation and these need to be considered in combination with the business scope of either being general or focused. Given that the construction sector has a long history of a tendering environment where ‘the lowest price wins’, cost leadership has been the dominant strategy. However, with new types of procurement methods being proposed and implemented by government-funded projects, differentiation is becoming another competitive strategy deployed by some large construction organisations. Differentiation as a competitive strategy can also be enhanced by an emphasis on sustainable procurement which includes four measurement aspects: economic, environmental, social and financial. The social aspect includes the impact on society in terms of wellbeing and safety. Chapter 7 Total Safety Management, or TSM, discusses in detail the issue of construction safety.

When developing and implementing strategies, McKinley’s ‘Seven S’s’ need to be considered (Peters and Waterman [18] cited in Price and Chahal [19]): Strategy, Structure, Shared visions, Systems, Skills, Style, Staff. A detailed
explanation of each 'S' is given below, together with the proviso that they are not discrete but are interrelated to each other.

- **Strategy**  Plan or course of action; allocation of firm's resources to reach goal.
- **Structure**  Basic grouping of reporting relationships and activities; chain of commands, responsibilities and accountabilities; linking of separate organisational entities.
- **Shared vision**  Significant meaning or guiding concepts.
- **Systems**  Formal processes and procedures, including performance measurement and reward, planning and budgeting; it is also the way in which employees relate to them.
- **Skills**  Includes organisational competencies, and other capabilities in the organisation.
- **Style**  Management's leadership and its operating styles; it is a reflection of the norms people act upon.
- **Staff**  The key is to recruit, select, develop and retain the right people for the right role. It also includes their sense of belonging, socialisation and career advancement/outlook.

There is an abundant amount of literature on generic strategic management, where different tools, methods, techniques and models are explained and discussed. Interested readers are encouraged to read further on this field. The following section focuses on construction-specific strategic management.

### Strategic management in construction

By comparison with other sectors there are a limited number of publications on strategic management in the construction sector. There are, however, two well-known and comprehensive texts, one by Langford and Male *Strategic Management in Construction* [20], and the other by Fellows et al. *Construction Management in Practice* [21], together with a limited number of published papers. Having said this, it has been claimed that the long-term survival of construction enterprise depends upon effective strategic management based on sound strategic planning, and strategic thinking has become increasingly important to construction organisations as a result of the industry's dramatically changing business environment [2, 22]. There is, however, little evidence to show that construction enterprises have adapted formal processes to develop long-term strategies.

Betts and Ofori [23] provided a five-level framework for strategic management in construction as below (our focus in this text is on Level 3: construction enterprise):

- **Level 1**  National construction industry, responsible by public-sector agencies.