1 The Culture of the Construction Industry

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 twientieth 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

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 that '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.

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