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Finance in the construction industry

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1.1 Introduction

To anyone walking past a construction site the scene can perhaps be best described as 'organised chaos'. The site will be fenced off, or there may be a hoarding around the site, and there will invariably be a variety of plant, equipment and scaffolding in evidence as well as stacks of bricks, heaps of sand and gravel; there will be partially completed work and work under construction and there will be cabins and site offices too.

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Clearly, all of this activity has a monetary value but the means of arriving at this value may not be immediately obvious to the untrained eye. The mechanisms of valuation and financial reporting of completed and partially completed building projects under construction are explained in this book, as are the means of assessing the value of the work in progress, the valuation of materials on site and the determination as to whether a contract is making a profit or loss. The book is also concerned with why the work has to be valued and how such valuations are conveyed or 'reported' to interested parties outside the contracting organisation.

The scene painted above would be typical of many sites irrespective of whether the contractor is large or small or whether the contract is for building, civil engineering, maintenance or any other type of construction work. However, one thing that contractors large and small have in common, whether they are limited companies or unincorporated, is the need, at some point in time, to determine the value of such partially completed contracts. This is necessary so as to enable a set of annual accounts to be prepared for submission to HM Revenue and Customs (HMRC) and, for most companies of any substance, to file their accounts annually at Companies House.

Construction is a multifaceted industry and construction projects are invariably not straightforward. The processes of tendering, contract award, work on site, completion and handover are often complex and fraught with difficulties and sometimes disputes. There are many influences that bear on the presentation of true picture of the financial position of construction projects, not least the culture of the industry itself.

1.2 The purpose of this book

The purpose of this book is to explain how the financial position on construction contracts is reported, how work in progress is valued, how this information is reported to management and how this is reflected in the annual accounts of the business. The book also explains why things are done as they are and brings into question certain practices that might be considered less than desirable.

To achieve this, it is necessary to understand some basic accounting terminology and practice, how the construction industry and its system of contracts works, how tenders for construction projects are put together and how financial information flows in a construction business.

The book is written for undergraduate and postgraduate students and for practitioners working in the construction industry; it is written in a language that this audience will hopefully recognise and understand. It is not written for accountants or bankers, although some of the insights revealed in the book may help them to better understand how the industry operates and why. We have tried to avoid accountancy 'jargon' and where this has been unavoidable we have tried to explain, in layman's terms, what it all means.

Above all, the authors believe that the book is an honest representation of 'how things are' in the reporting of the financial position of construction contracts and make no apologies for being brutally frank about some of the 'questionable practices' that the industry suffers from. This is not to say that we endorse such practices - far from it - but good practice cannot flourish without awareness of the bad.

1.3 Construction contracting

The subject matter of this book concerns the financial management of construction projects. To be more specific, the focus is on the 'contracting' side of the construction industry - that is to say where projects are undertaken by contractors who are engaged by clients (employers) to carry out a building or civil engineering project for a stated price or for a price to be determined on completion. The principles and issues discussed apply equally to main contractors and specialist subcontractors but the financial management of speculative housing developments, carried out by contractor-developers, is handled somewhat differently and is not, therefore, covered by this text.

All contractors - whether small, medium or large - need to know and understand the financial situation of their projects in order to recognise when things are going wrong and be able to take remedial action before it is too late. However, many contractors and subcontractors in the construction industry, especially the smaller ones, are simply not 'in the loop' when it comes to the financial aspects of their business. They see a healthy order book, they see cash coming in, they see a healthy bank balance and they assume that all is well. This may be far from the case, however, and disaster may be waiting just around the corner. The reason is that what they 'see' is not the 'true' position and, hopefully, the reasons for this will become clearer as the chapters unfold.

One of the great problems in understanding what goes on financially in contracting is that construction contracts of any significant size are complex. The way that contracts are priced, the design changes and unexpected events that take place during construction, the natural human tendency to argue over money and the endemic financial instability of many of the firms that operate in the construction industry all contribute to the complex nature of the financial aspects of construction projects. Add to this the singular culture of the industry, the problems caused by the separation of design from construction, the complex contractual and procurement arrangements employed and the 'grey water' becomes very 'murky'!

A large part of the work of a contractor's quantity surveyor is to provide financial data in order to show the financial position of projects under his/her control. This is usual practice in most medium and large sized contractors but much less so in smaller firms and specialist 'trade' contractors. The whole idea of contracting is to win contracts and make money and the quantity surveyor acts in a quasi-accountancy role to provide information for line managers to run projects efficiently and within budget and to capitalise on opportunities to 'make money' when the occasion arises.

1.4 Work in progress

Ask any accountant what the main problem is in contracting and the answer will be 'the valuation of work in progress'. Work in progress is the *bête noir* of construction accounting and Barrett (1981) pointed out that *no area of accounting has produced wider differences in practice than the computation of the amount at which stocks and work in progress are stated in financial accounts*.

At any given point, a contracting company will have a number of projects running that are incomplete; this means that there will inevitably be a significant amount of work in progress. On one particular day in the year the annual accounts will be 'struck' and the work in progress will have to be reported. To know the true financial

position of the business at such a point, the work in progress has to be valued. This has to be done in a consistent fashion across all contracts and must be done in line with defined and accepted standards of accounting practice in order to ensure that the annual accounts state a true and fair view of the company.

Taken in its narrow meaning, 'work in progress' is the term used to describe work carried out on site that has not yet been invoiced. In other words, it is work done and materials delivered to site after a valuation has been carried out and before the next one is done. Consequently, work in progress represents an amount of money that has not been agreed or certified for payment and is, therefore, subject to question, disagreement or dispute. Accountants see work in progress as a problem because it is frequently the case that the amount received is less than that expected; this can have a serious impact on cash flow and the availability of working capital.

With respect, it is likely that many accountants and bankers are unaware that there may well also be a problem with work done that *has been* certified for payment. This may arise due to a lack of understanding about the way that construction tenders are priced and the influence this has on the valuation of work carried out on site. Consequently, albeit that the work may have been valued by the employer's quantity surveyor and certified for payment, it is quite possible that the valuation will not be a 'true value' because of the way that the contractor has priced his tender in order to reduce negative cash flows and maximise the commercial opportunities provided by the contract. These and other related issues are explained in later chapters.

Consequently, 'work in progress' could be viewed in a broad sense to mean all the work done on a contract to date, whether certified or not and whether paid for or not, because despite payments made on account during a contract, the valuations made are not 'true values', the payments on account are not binding (only the final account is) and the eventual settlement on the contract may be no more than a 'horse deal'.

Notwithstanding this, 'work in progress' has a particular meaning in the annual accounts more in line with the narrow meaning referred to earlier. 'Work in progress' is a truncated version of more long-winded terms that appear in a set of annual accounts including 'stocks and work in progress', 'stocks and long term contracts', 'amount recoverable on contracts' and so on. It all means the same. The 'stocks' aspect is not so important in construction as in other industries. Traditionally, contractors always carried stocks of materials in their 'builder's yard' - for emergencies, small jobs and as a store for over-ordered materials from contracts. Nowadays, holding stocks of materials represents vital working capital tied up and most contractors employ 'just-in-time' ordering methods for their sites.

The 'work in progress' aspect is the important bit!

1.5 Reporting

Whilst there is no denying the importance of the issue of 'work in progress', this book is concerned with much more than that. In the final analysis this book is about reporting. At one end of the scale the quantity surveyor is reporting the financial position on a construction project and at the other end the accountant is reporting the financial position of the company as a whole. In between is a flow of information that is influenced by many factors and it is the quality of this information that determines whether or not the financial position, either on the project or in the accounts, is true and correct.

The importance of reporting the true position on individual projects is vital from a business survival point of view but it is also important in terms of filing tax returns, filing annual returns to Companies House and informing shareholders about the business and how it is doing. Consequently, a clear picture is needed for management control and for giving all sorts of outsiders a true view of the affairs of the business. As will be discovered later in the book, this is far from easy to do and a distorted impression of what is going on financially may well be the outcome of any lack of understanding, questionable practices and frail reporting systems.

More than thirty years ago, Barrett (1981) observed that *inconsistent financial reporting and failure to identify the true financial position of contracts is unfortunately all too frequent*. Much has changed since then in that there are now higher standards of corporate governance and greater transparency in financial reporting. The fact remains, however, that the reporting of the financial position on contracts is at best problematic and at worst misleading and this stems from the nature of construction contracting, ignorance of best practice and the human tendency to 'gild the lily' in order to make things look better than they really are.

1.6 Structure of the book

The book is structured in three main parts:

Part 1 - External environment, which provides the context in which contracting firms operate including:

- How the contracting side of the industry works.
- The problems the industry faces and their impact on contracting.
- The risks and uncertainties that face firms working in contracting.
- How contractors are financed and what the problems are.
- The system of contracts and payments that operates in construction contracting.
- The corporate governance and accounting standards and practices that apply.

Part 2 - Internal environment, which explains:

- How contracting firms are governed financially.
- How contractors are organised so as to operate effectively.
- How contractors go about obtaining work.
- How contractors budget for and control their finances.

Part 3 - Project environment describes:

- The contractual and procurement mechanisms whereby contractors are paid for the work they do.
- How work in progress is valued and certified for payment.
- How money and resources are budgeted for at project level.
- The financial control systems needed to effectively manage project risks.
- How physical and financial progress is reported.
- How the profitability of contracts is reported and how losses on projects are recognised.

Above all, the book is structured in such a way as to provide an understanding of corporate reporting standards and practices so that a true and fair view of a company is presented in the context of the contracts that it carries out.

1.7 The construction industry

The construction industry is similar to other manufacturing industries in that a product is produced and sold to a client. An organisation has to procure resources from the market place, combine them with other resources, add value and then dispose of the final product to make a return on its investment. To understand financial management in construction it is important to understand the context within which construction organisations work.

The UK construction industry has been the subject of much interest over the years and numerous investigations and reports have been published describing the problems of the industry, the tensions that exist between those involved in the construction process and the outdated and unfair practices that characterise the way that the industry conducts its business.

1.7.1 Industry reports

The Latham and Egan reports are perhaps the best known in that long succession of investigations, many of which identified similar problems and made similar recommendations. There have been a total of 13 reports since 1944 that have investigated and produced recommendations about the industry. Langford and Murray (2003) provide an indepth critique of each of the reports. These reports are:

- The Simon committee report (1944)
- The Phillips report on Building (1948-1950)
- The Emmerson report (1962)
- The Banwell report (1964)
- The Tavistock studies (1965 and 1966)
- Large Industrial Site Report (1970)
- The Wood Report (1975)
- Faster Building for Industry: NEDO(1983)
- Faster Building for Commerce: NEDO (1988)
- Constructing the Team: The Latham Report (1994)
- Technology Foresight Report: Progress through Partnership (1995)
- Rethinking Construction: The Egan report (1998)
- Never waste a good crisis: Wolstenholme report (2009).

Sir Michael Latham and Sir John Egan set a series of challenges to the industry and gave us an 'official' view of what are now seen as some of its strengths and many of the weaknesses. The reports have been widely discussed, welcomed, criticised and - in some respects - ignored. At this point, a brief review of the critical issues they raised may provide a useful background to understanding the industry and its complexities discussed in later chapters of the book. A brief comparison of some of their recommendations with those found in earlier reports reveals how deep-seated the problems are.

1.7.2 Industry reform: origins and responses

In 1991, Sir Michael Latham was commissioned, in a joint venture by Government and the industry, to conduct a review of the 'Procurement and Contractual Arrangements in the UK Construction Industry'. An interim report, *Trust and Money*, was published for consultation in December 1993, and the final report, *Constructing the Team*, in July 1994 (Latham, 1993, 1994). These reports identified a wide range of weaknesses in current procedures. Most of these had already been separately recognised in the industry, and indeed discussed in some of the earlier official reports identified above, but Latham linked them together and set out an agenda for reform.

The Latham Report made over thirty specific recommendations, which can be summarised in a few categories:

- Government should take the lead in improving clients' knowledge and practice, particularly of how to brief designers and select procurement methods.
- The whole design process should be reviewed and the link between design and construction improved.
- Building contracts should be simpler, clearer, more standardised and less prone to lead to disputes.
- There should be simpler faster means to resolve disputes where they do occur.
- There should be a Construction Contracts Bill, outlawing some unfair practices, the introduction of adjudication as the normal method of dispute resolution and the establishment of trust funds for payment.
- Government should maintain lists of approved consultants and contractors for public sector work.
- The traditional methods of tendering should be revised and improved.
- Training and research programmes should be rationalised and improved.
- The industry should aim for a 30% reduction in costs by the year 2000.

Although many of the Latham recommendations were accepted and followed up, including the enactment of a Construction Act, only a few years later the Deputy Prime Minister, John Prescott, set up another committee - this time a 'task force' - under Sir John Egan of the British Airports Authority to advise:

'from the client's perspective on the opportunities to improve the efficiency and quality of delivery of UK construction, to reinforce the impetus for change and make the industry more responsive to customer needs'. (Strategic Forum for Construction, 2002)

The Egan report, *Rethinking Construction* published in 1998 (Egan, 1998), was shorter and sharper but more radical than Latham. The language was different, the criticism harsher and it implied a total change in the industry's culture. Many of the recommendations of the two reports were in effect very similar, but whereas Latham seemed to look for reform within the old traditions, Egan was proposing a revolution, or so it seemed.

The Egan Report identified what it called '*five key drivers for change*':

- committed leadership;
- a focus on the consumer;
- integrated processes and teams;

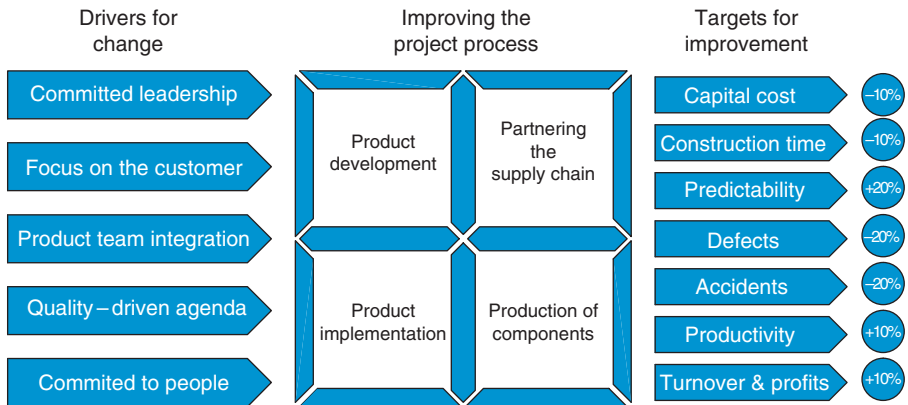


Figure 1.1 The Egan 'drivers' and 'targets' (Strategic Forum for Construction, 2002, p. 13).

- a quality-driven agenda;
- commitment to people.

Egan set specific targets:

- an annual reduction of 10% a year in construction costs and time;
- a reduction in defects by 20% a year;
- a radical change in industry methods in order to create an integrated project;
- dramatically improved working conditions;
- improved management and supervisory skills.

The Egan 'drivers' and 'targets' are illustrated in Figure 1.1.

The immediate impact of Egan was considerable. The report was widely discussed; new bodies were set up to push the ideas forward, such as the Movement for Innovation (known as M4I), which was linked to the already existing 'Best Practice Programme'. The Government moved towards forcing all public sector and publicly supported bodies, such as its own Departments, the health service and the housing associations to become 'Egan compliant'. The Auditor General's office produced its own report, *Modernising Construction* (NAO, 2001), showing how the Egan principles were to be applied throughout the public sector.

The Egan Task Force felt that for the industry to reach its full potential, it needed to change its culture and structure to support the improvement. It recommended that the industry should provide decent and safe working conditions and improve management and supervisory skills at all levels. Furthermore, it felt that better results could be achieved through long-term relationships based on clear performance measures and sustained improvements in quality and efficiency by continuing to learn and improve as a team, rather than competitively tendering and having to create a new team for every project.

There was no suggestion that construction companies should lead the change and, instead, the emphasis was placed on construction clients to show leadership and put forward 'demonstration projects' to show the recommendations of the report in practice. The Government in particular was invited to lead public sector bodies to become best practice clients. The report resulted in the development of

How have we changed Egan’s targets?

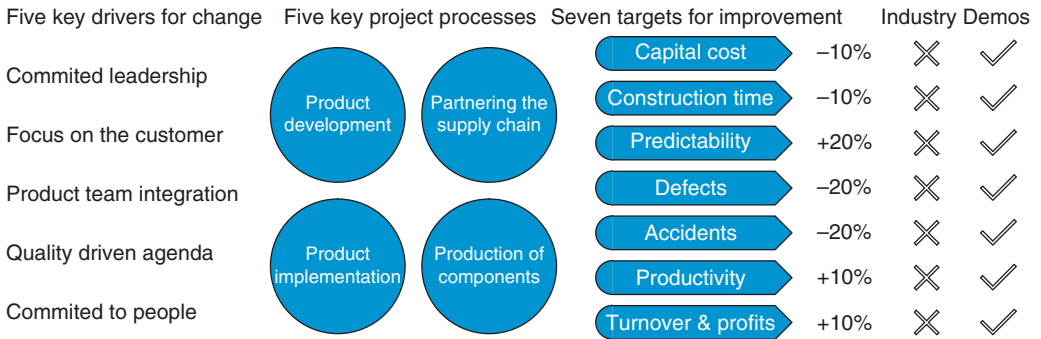


Figure 1.2 Industry performance post-Egan (Reproduced by permission of Constructing Excellence Ltd).

a set of Construction Industry Key Performance Indicators, which are now published annually by Constructing Excellence.

The impact of the Egan report was the focus of a study by a Constructing Excellence review team lead by Andrew Wolstenholme of Balfour Beatty Construction. This report considered the progress made by the industry on the various performance measures suggested by Egan, collected data from over 500 demonstration projects, hosted focus groups and analysed almost 1000 questionnaire returns. Figure 1.2 illustrates the results of the review team’s findings which show that, whilst the demonstration projects were 100% successful against target, the industry:

- had failed to meet virtually every target;
- had reverted to traditional practice;
- had only partially and superficially adopted the Egan principles.

By analysis of the reasons for change, Wolstenholme identified three main categories of barriers to change and improvement:

- economic model blockers
- business model blockers and
- capability blockers.

Table 1.1 indicates the economic and business blockers highlighted in the Wolthenholme Report.

1.7.3 Housing Grants, Construction and Regeneration Act 1996

The reasons why the Government intervened by introducing the Construction Act can be rooted back to the original review by Latham in 1994. Latham recognised the importance of the industry to the national economy and also appreciated that the industry was essentially made up of thousands of small enterprises that were economically vulnerable due to small profit margins and heavy reliance on careful cash flow management. Unfortunately, insolvencies in construction are high when compared to the economy as a whole. If the recommendations for developing integrated supply chains, focused on high quality and efficient delivery in a non-adversarial way, were to be achieved, a level of trust which was not present was required.

Table 1.1 Economic and business blockers.

Blocker	Definitions
Lack of Cohesive Industry Vision	A lack of joined-up thinking in Government and our industry about how the built environment contributes to the UK's long-term prosperity and the aim of achieving a sustainable, low-carbon economy.
Few Business Drivers to Improve	For much of the supply chain, there are too few business or economic drivers to deliver meaningful change. They are prepared to accept stable, though unexciting returns, rather than attempt changes that are seen as being 'too difficult'.
Construction 'Does not Matter'	The low impact of construction costs and outcomes on the client's business case means that in some sectors construction 'does not matter'.
No Incentives for Change	Most client business models are focused on short-term gain and do not reward suppliers who can deliver long-term sustainable solutions.
Construction is Seen as a Commodity Purchase	Too many clients focus on the upfront costs of construction, rather than the value created over the lifetime of an asset. Few suppliers, other than those involved in PFIs, have any continued interest in the operation of the building and therefore no incentive to raise quality standards.
Industry Culture is Driven by Economic Forces	Even where clients plan for the long term, few have avoided cuts during the current downturn. Many clients and suppliers appear to have abandoned partnering behaviour (if they ever adopted it in the first place) and returned to transactional relationships.

(Constructing Excellence, 2009:15).

In Egan's report in 1998 he stated that *'The extensive use of subcontracting has brought contractual relations to the fore and prevented the continuity of teams that is essential to efficient working.'*

The required collaboration and trust between all parties in the construction process was hampered by a culture of blame, claim and counter claim, disputes and poor payment practices. The National Audit Office, Constructing Excellence and Government client bodies all endorsed the integrated team approach but it was not until publication of the National Audit Office Report, *Improving public services through better construction* (NAO, 2005), that the issue of unfair payment practices was raised. The NAO Report stated that:

'Unfair payment practices, such as unduly prolonged or inappropriate cash retention, undermine the principle of integrated team working and the ability and

motivation of specialist suppliers to invest in innovation and capacity. Departments should have the appropriate visibility of the entire supply chain. Understanding how specialist subcontractors and particularly small and medium sized enterprises are engaged, evaluated and managed can contribute considerably to the achievement of value for money. For example, Departments should have in place effective and fair payment mechanisms ... to provide more certainty to suppliers' payments dependent upon delivery to time, cost and quality.'

Latham brought together interested parties in 2004/2005 to review the Construction Act with a view to specifically improving its adjudication and payment provisions. A consultation paper on *Improving payment practices in the construction industry* was published by the Department of Trade and Industry (DTI, 2005).

The main aim of the Act with reference to payment was to:

- provide a right to interim, periodic or stage payments, making clear when payments become due, their amount and a final date for payment;
- prevent the payer from withholding money from the 'sum due' after the final date for payment unless he has given a withholding notice;
- provide a statutory right for the payee to suspend performance where a 'sum due' is not paid, or properly withheld, by the final date for payment;
- prohibit 'pay-when-paid' clauses which delay payment until it is received by the payer.

The Housing Grants, Construction and Regeneration Act 1996 contained wide ranging provisions regarding:

'An Act to make provision for grants and other assistance for housing purposes and about action in relation to unfit housing; to amend the law relating to construction contracts and architects; to provide grants and other assistance for regeneration and development and in connection with clearance areas; to amend the provisions relating to home energy efficiency schemes; to make provision in connection with the dissolution of urban development corporations, housing action trusts and the Commission for the New Towns; and for connected purposes.'

Part 1 of the Act was concerned with grants for private and social housing and contained wide ranging provisions dealing with the management of social housing provision. The provisions of the Act that were of more interest in relation to the subject matter of this book were contained in Part 2. This part of the Act in effect related to amendments needed in construction contracts so as to:

- give each party to a construction contract the right to refer a dispute to adjudication and require parties to include terms in their contract relating to adjudication that comply with section 108 (2) to (4);
- provide that contractors are entitled to stage payments - section 109;
- provide that contracts should have an 'adequate mechanism' for determining what should be paid and when - section 110 (1); and
- require that the payer should issue a notice in advance of each payment of the sum he proposes to pay - section 110 (2).

The impact of the Housing Grants, Construction and Regeneration Act 1996 was that:

- it formalised the approach to payment;
- it identified the need for a construction contract; and that
- such a contract should have a payment mechanism which was in accordance with sections 109 and 110.

1.8 Industry output

The output of the construction industry varies enormously, from repairs to a roof to redevelopment of city centres. The large majority of projects are of relatively low value and short duration and, proportionally, repair and maintenance to existing buildings forms a major part of the industry’s workload. The demand for the industry’s services varies significantly over time due to Government interest rate policy, public sector spending programmes and economic confidence.

The construction industry is similar to other industries in that it is difficult to define its boundaries and classifications. The Office of National Statistics (ONS) compiles data on the output of the industry and adopts an approach to classification based on a Standard Classification of Economic Activity which was revised in 2007 and published in 2009. A Standard Industrial Classification (SIC) was first introduced into the United Kingdom in 1948 for use in classifying business establishments and other statistical units by the type of economic activity in which they are engaged.

The SIC classification provided a framework for the collection, tabulation, presentation and analysis of data; Table 1.2 indicates the different SIC categories. There are three major sections within category F, these are:

Table 1.2 SIC Categories.

SIC (2007)			
A	Agriculture, forestry and fishing	L,M,N	Real estate activities, professional and scientific activities
B	Mining and quarrying	O	Public admin and defence
C	Manufacturing	P	Education
D,E	Electricity, Gas supply	Q	Human health and social work
F	Construction	R,S	Arts entertainment and recreation
G	Wholesale and retail trade; repair of motor vehicle	T	Activities as households as employers
I	Accommodation and food service activities	U	Activities of extra territorial organisations
H,J	Transport and storage Information and communication		
K	Financial and Insurance activities		

(ONS, 2007). Contains Parliamentary information licensed under the Open Parliament Licence v1.0 (<http://www.parliament.uk/site-information/copyright/open-parliament-licence/>).

- 41: Construction of buildings;
- 42: Civil Engineering; and
- 43: Specialised construction activities.

Within these categories there are 27 subdivisions, which are shown in Table 1.3.

The economic output of the construction industry is measured annually by the ONS which currently uses the SIC (2003) categories. The data are collected from a variety of sources, including from questionnaires sent to almost 100 000 construction organisations who report upon their construction output and from information held by government departments. The data are collected, grouped under standardised headings and then reported to allow annual comparisons to be made.

Table 1.3 SIC Category F – Construction.

Section F: Construction	
41	Construction of Buildings
	41.1 Development of building projects
	41.2 Construction of residential and non-residential buildings
	41.2.01 Construction of commercial buildings
	41.2.01 Construction of domestic dwellings
42	Civil engineering
	42.1 Construction of roads and motorways
	Construction of railways and underground railways
	Construction of bridges and tunnels
	42.2 Construction of utility projects
	Construction of utility projects for fluids
	Construction of utility projects for electricity and communication
	42.9.1 Construction of water projects
	42.9.9 Construction of other civil engineering projects
43	Specialised construction activities
	43.11 Demolition
	Site preparation
	Testing, drilling and boring
	43.2 Electrical installation
	Plumbing, heat and air conditioning
	43.3 Building completion and finishing
	Plastering
	Joinery
	Painting and glazing
	Painting
	Glazing
	Other
	43.9 Other specialised completion activities
	Roofing
	Scaffold erection

(ONS, 2007, Summary of Structure). Contains Parliamentary information licensed under the Open Parliament Licence v1.0 (<http://www.parliament.uk/site-information/copyright/open-parliament-licence/>).

Table 1.4 Construction demand.

	Great Britain											£ million			
	New housing						Other new work					All other new work	All new work	Total Public	Total Private
	Public new housing	Private new housing	All new housing	Infrastructure	Infrastructure	Public new work exc. infrastructure	Private industrial		Private commercial						
							infrastructure	infrastructure	infrastructure	infrastructure					
Total 1997	1245	7608	8852	4971	4538	5595	13320	28427	37278	10754	54950				
Total 1998	1159	7229	8388	5503	5423	5216	16764	32905	41293	12085	62114				
Total 1999	1203	7125	8328	5173	5084	4505	16102	30864	39191	11460	58596				
Total 2000	1126	7323	8450	6179	5949	4577	17104	33808	42259	13254	62812				
Total 2001	1344	7865	9208	6399	6423	4500	18019	35340	44547	14166	65724				
Total 2002	1406	9803	11210	7008	9304	4019	18672	39001	50211	17718	71495				
Total 2003	1690	11611	13301	6203	9770	4294	17452	37720	51021	17663	71077				
Total 2004	2160	15040	17200	4722	10793	4631	21395	41543	58742	17675	82609				
Total 2005	2475	16258	18730	6974	10624	6140	23553	47291	66021	20073	93242				
Total 2006	3356	16572	19929	5306	9541	6376	30627	51851	71779	18203	105426				
Total 2007	3733	16037	19769	6965	11393	5836	32115	56309	76078	22091	110297				
Total 2008	3081	9200	12283	7897	14672	4346	23353	50267	62550	25650	87166				
Total 2009	3107	6393	9500	11032	14709	2654	12886	41280	50780	28848	63213				
Total 2010	3559	10303	13863	10019	13751	2204	14215	40191	54053	27329	66913				

(ONS, 2011, Table 1.7). Contains Parliamentary information licensed under the Open Parliament Licence v1.0 (<http://www.parliament.uk/site-information/copyright/open-parliament-licence/>).

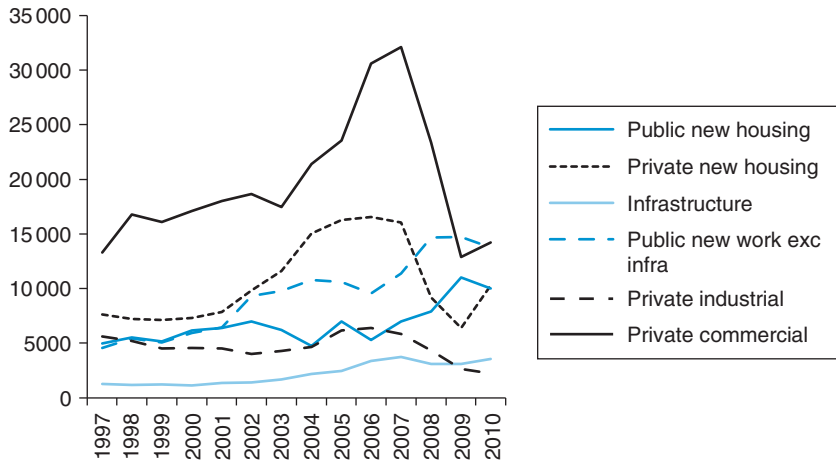


Figure 1.3 Construction demand.

Table 1.4 shows an example of the data reported by the ONS in the 2010 Annual Construction Statistics. These data give an indication of the demand for construction and the reader can easily identify the two major categories of public and private sectors. Data are collected for new housing both public and private, infrastructure work and public commercial and industrial work. The data in Table 1.4 are illustrated graphically in Figure 1.3.

1.9 Industry clients

Construction is largely a bespoke industry. Clients typically specify their requirements to an architect or other designer, or to a contractor with design expertise, and the project is then built 'on demand'. There are exceptions to this where a building is constructed in anticipation of a future demand, such as speculative housing or speculative office and retail developments. Demand for construction products varies year on year due to disposable incomes, income distribution, public sector finances and population and relative prices.

The division between public sector and private sector clients is a fairly straightforward distinction to make but with the advent of utilities and rail privatisation, the private finance initiative, arms-length management organisations and registered social landlords the traditional distinctions are sometimes difficult to identify.

The public sector includes Government departments, local authorities, health trusts, universities and defence. The Government is a major client of the construction industry and can act as an important regulator of demand. Figure 1.4 gives an indication of the change in public spending over a ten-year period. The significance of the Government as a client is in no doubt, but what determines how much is spent?

This is a simple question with a many-faceted answer. Fundamentally there are two dominating factors:

- first there is the perceived demand for a new building or service and the Government's view on its affordability;
- second there is the Government's perception of the impact of its spending programme on the economy as a whole.

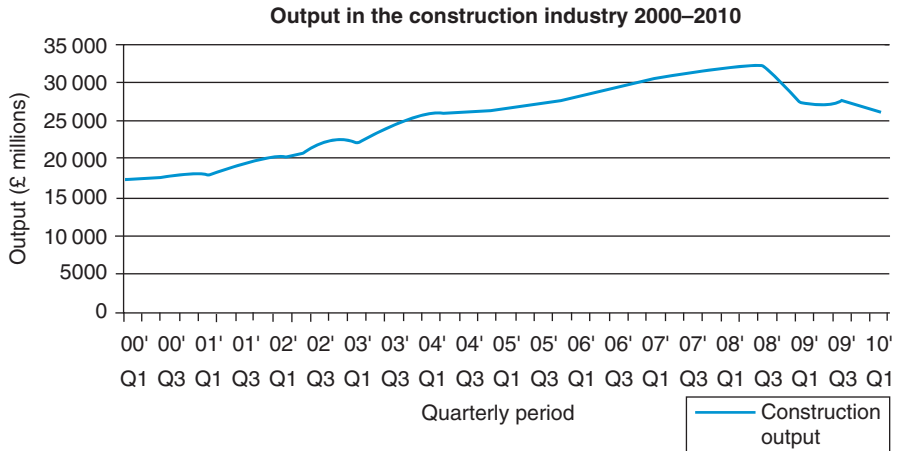


Figure 1.4 Public sector spending 2000–2010.

Private sector clients are more difficult to categorise but four broad groupings may be suggested:

- clients for small buildings;
- major clients developing for their own occupation;
- property developers;
- private house buyers.

Each of these categories has distinctly different needs, experience of the industry and access to finances.

1.9.1 Clients for small buildings

A great deal of construction output is for clients in need of small buildings; these may be for individuals or organisations that require new premises or extensions and alterations to existing buildings.

The nature of such clients varies enormously but the feature that they all generally share is that they are inexperienced and unused to the construction industry and its way of working. The work that this type of client commissions tends to form the core business of construction organisations that operate locally. Clients within this group which require larger projects would usually approach an architect who takes them through the planning process and sometimes procures the builder to undertake the works. Many clients, however, approach a contractor directly to undertake the design and construction of their projects.

1.9.2 Major clients developing for their own occupation

These types of client are large, powerful and influential and have driven the agenda for improvement which has made the industry change its ways of operating significantly over the last twenty years. Examples of clients that fall into this group are the British Airports Authority, retailers such as Marks and Spencer, Tesco, Waitrose and Sainsbury's, hotel groups such as InterContinental Hotels Group and Whitbread and food retailers such as MacDonald's and Yum! (Pizza Hut and KFC).

These clients are experienced and often have their own in-house project management teams. They are repeat clients and often used the promise of future work to derive discounted prices from construction consultants and organisations. They also have a good knowledge of how long a construction project will take and how much it will cost.

1.9.3 Property developers

A second major category of client is the property developer, whose influence can be seen in large towns and cities throughout the country. They are generally clients who build with tenants in mind, have a clear idea of the demand for the completed building and undertake careful feasibility studies before deciding to invest.

Examples include Grosvenor, which has recently completed a £1bn redevelopment of Liverpool city centre, The Peel Group and Bruntwood.

1.9.4 Private house buyers

The house buying market is a volatile one and a great deal of analysis is undertaken as it is often used as a barometer to measure the health of the economy generally. This is because private house buyers make up, numerically, the largest group of the construction industry's customers. The demand for houses is very much influenced by affordability (often measured as a ratio between house price and income), the availability of finance, the perception of the value of the market, overall confidence in job security and the availability of houses to purchase. Housing demand is generally in ten-year cycles; at the time of writing house building is showing a slow recovery after a five-year period of decline.

Whilst consideration of the financial aspects of the housing side of the industry is outside the scope of this book, it must be remembered that 'contractors' operate in this sector either as 'developer-contractors' or 'trade contractors' engaged in housing developments. As such, the reporting practices discussed in this book are relevant only to the extent that the contractors in question are engaged to carry out work under a formal building or engineering contract following some sort of formal tendering process.

1.10 Structure of the industry

A study of the structure of any industry gives an indication of the extent to which the concentration of supply or the proportion of an industry's output lies in the hands of a few firms. Large manufacturing industries such as aerospace, motor cars or ship building can be considered to be highly concentrated and this is similarly the case for manufactured construction products such as bricks, cement or glass.

Table 1.5 shows a clear picture of the banding of construction firms by numbers employed and indicates the annual value of work done in each banding category.

1.10.1 Size and distribution of firms

As can be seen from Table 1.5, almost 70% of firms that make up the industry employ up to three people and there are only 62 organisations that employ over 1200, a tiny 0.03%. However, looking at the value of work carried out, this tiny number of large firms is responsible for 22% of the total of new work.

Table 1.5 Number of firms, employment and work done by private contractors, 3rd Quarter 2009.

Size of firm (by number employed)	Number of firms	% of total	Total employment (000)	Value of work (£million)	% of total
Band 1					
1	75 382	38.85	88.4	609	2.69
2-3	60 625	31.25	114.2	1076	4.74
4-7	33 069	17.04	141.4	1253	5.53
8-13	12 390	6.39	103.2	1507	6.65
Band 2					
14-24	6502	3.35	102.1	1687	7.44
25-34	2104	1.08	56.9	1171	5.17
35-59	2064	1.06	82.3	2191	9.66
60-79	596	0.31	34.9	962	4.24
Band 3					
80-114	484	0.25	40.9	1092	4.82
115-299	531	0.27	83.8	2666	11.76
300-599	154	0.08	60.4	2268	10.01
600-1199	62	0.03	38.0	1152	5.08
Band 4					
1200+	62	0.03	167.9	5038	22.22
TOTALS					
All firms	194 025		1114.4	22 673	

(ONS, 2011, Table 3.3). Contains Parliamentary information licensed under the Open Parliament Licence v1.0 (<http://www.parliament.uk/site-information/copyright/open-parliament-licence/>).

This trend for concentration – that is the high proportion of the industry’s output produced by the few largest businesses – has increased over time. Since 1972, the number of large firms has reduced but their share of total output has increased.

Measurement of output is problematic, however, as there are no categories for firms which employ over 1200 people. The use of specialist subcontractors and labour-only subcontractors makes interpretation of the data even more difficult.

A further subdivision of the industry is available; it is shown in the Table 1.6. This provides a good representation of the nature of the industry as a whole because it categorises:

- numbers employed in the three main categories (or ‘trades’) of the industry – housing, non-housing and civil engineering;
- numbers employed in the other ‘trades’ normally associated with the construction industry, such as demolition, roofing, plumbing and plastering and so on.

Further scrutiny of Table 1.6 reveals that the statistics for the specialist contractors identify that very few of the firms in the specialist trades have large numbers of employees. The only exceptions are the electrical contractors and heating and ventilating engineering firms. There are, of course, lots of other data

Table 1.6 Trade and number of employees, 3rd Quarter 2009.

Trade	Employees (000)
Main trades	
• Non-residential building	58.7
• House building	69.3
• Civil engineering	50.1
Total main trades	178.2
Other trades	
• Constructional engineers	0.2
• Demolition	7.9
• Test drilling and boring	0.6
• Roofing	15.0
• Construction of highways	21.5
• Construction of water projects	1.3
• Scaffolding	21.8
• Installation of electrical wiring and fitting	90.7
• Insulating activities	7.7
• Plumbing	58.6
• Plastering	4.2
• Joinery installation	21.8
• Floor and wall covering	8.4
• Painting	18.1
• Glazing	8.8
• Plant hire (with operators)	9.3
• Other construction work and building installation and completion	107.9
Total other trades	403.6
Total all trades	582.0

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on the manufacturing sectors that supply the construction industry that are not included here.

The structure of the industry has changed significantly over the last thirty years. The changes have been due to increased specialisation, costs of entry, transactional costs of employment and the fluctuations in workload.

1.10.2 Risk culture

Construction can be a risky and uncertain process and there are many factors that contribute to this condition including:

- the economic conditions prevailing at the time of a proposed development;
- the various engineers, architects, surveyors and other consultants appointed by the client who all have their own professional allegiances, cultures and attitudes towards contractors;
- the design process and its separation from production;
- the procurement of contractors, subcontractors and suppliers;

- the physical process of construction; and
- the eventual completion and handover of the project.

It is not difficult to understand why a culture of risk transfer has developed in the construction industry. Clients who have previously embarked on construction projects have found that it is an industry which is highly litigious and has poor predictability in terms of costs and time. Projects are often completed late and are frequently over budget. Problems of poor communication abound. There are many high profile instances of construction projects that were late and over budget - Wembley Stadium and the Holyrood Parliament building being two noteworthy examples.

Consequently, clients try to ensure that their risks are transferred to the main contractor, which in turn seeks to transfer risk to subcontractors and suppliers.

It is unsurprising that money is often at the heart of the problems that occur between organisations. In 1971 Lord Denning stated that 'cash flow is the lifeblood of the building trade' and whilst being a simple and obvious statement, the litigious practices that have developed in the construction industry generally revolve around getting paid.

Organisations try to maximise what they are paid, try to get paid as early as possible and then pay what they owe as late as possible. The consequence of this is that construction is beset with disputes and a new 'industry' in construction adjudication has grown up since the advent of the Construction Act in 1996. Construction has more insolvencies than any other sector and more money is spent on litigation relating to payment as a percentage of GDP than any other industry. The culture of claim, counterclaim and blame is a far cry from Latham's dream of 'win-win'.

1.10.3 Specialist contractors

The problems of the construction industry are not limited to clients and contractors as the process of planning, design, construction, refurbishment and maintenance of the built environment is heavily reliant on specialist subcontractors and supply organisations that provide a wide range of services and expertise to clients, designers, consultants and contractors.

These specialisms include heating, ventilating and air conditioning, electrical engineering, fire protection and prevention, demolition, asbestos removal and remediation services, as well as the more easily recognisable 'trades' such as plumbing, plastering, painting and tiling and so on.

James Wates, Chairman of Wates Construction, identified that over 500 representative bodies exist in the construction industry and, of these, some 32 specialist trade organisations are members of the National Specialist Contractors Council (NSCC) which claims to be '*the authoritative voice of Specialist Contractors in the UK*'. Its members include the National Federation of Roofing Contractors, the Resin Flooring Association, the Federation of Piling Specialists, the Glass and Glazing Federation, the Door and Hardware Federation and the Mastic Asphalt Council. The NSCC brings together the common aims of specialist trade organisations and is recognised as the principal point of contact with specialist contractors for organisations such as the Construction Skills Certification Scheme (CSCS), ConstructionSkills and the Cross-Industry Construction Apprenticeship Task Force (CCATF).

The remit of the Specialist Engineering Alliance (SEA) is '*to facilitate greater integration of all the parties within the specialist engineering supply chain*' whether

consultants, contractors or manufacturers and its membership includes the Association for Consultancy and Engineering (ACE), the Building Services Research and Information Association (BSRIA), the Chartered Institute of Building Services Engineers (CIBSE), the Federation of Environmental Trade Associations (FETA) and the Specialist Engineering Contractors' Group (SEC Group).

The Heating and Ventilating Contractors Association represents its member companies and, in turn, is a member of the Specialised Engineering Contractors' (SEC) Group. The National Federation of Demolition Contractors is a member of the UK Contractors Group (UKCG), which is the main representative association for contractors in the UK and successor to the Major Contractors Group and the National Contractors Federation.

All of these representative bodies believe that they have a unique role to play in helping their members to deliver a quality service, best value and integrated solutions to their clients and, as such, feel that their members have a unique set of issues that need to be represented whether they be of a technological, economic, environmental or contractual nature.

Each of these specialist contractors use different resources - materials, labour and plant - depending upon the nature of work undertaken, the precedence of their operations, the period on site and so on and it is not surprising that different cultures exist between individual specialist organisations and between these organisations and those who employ them, whether main contractor or client.

1.10.4 Payment processes

The nature of the payment process in construction is another reason for cultural difficulties in the industry. Generally speaking, clients employ consultants who value the works and then arrange for payment to the parties to the contract. The contract is usually between a client and a main contractor, albeit that there may be direct payments from client to subcontractors under certain procurement methods.

The valuation process is agreed before the contract commences and appropriate valuation dates arranged. The time lag between valuation and payment is often considered as an adequate safety mechanism against over valuation of the work by consultants but the additional contingencies of retention monies and performance bonds and so on can be considered as further security. However, the costs likely to be incurred by an employer if a contractor becomes insolvent before contract completion are likely to be in excess of this contingency. In such a case, the employer has to look elsewhere for recompense for the loss incurred and this is likely to be from the consultants.

Consequently, consultants are wary of overpayment but contractors are aware of this and their agenda is to seek to maximise their claims for payment. This tension between consultants and contractors can blight relationships between the parties.

Similar tensions arise between subcontractors and main contractors as a consequence of the contract that normally binds them together. These contracts are often bespoke forms written by the main contractor to protect his interests and designed to pass on risk in an inequitable way to the subcontractor. Whilst 'pay-when-paid' and 'pay-what-paid' clauses are now outlawed under the Construction Act 1996, subcontractors are never sure to gain their just entitlement under the contract and, furthermore, are often commercially 'muscle'd' to provide additional discounts when they have already tendered at highly competitive prices. Such an

atmosphere between contracting parties leads to distrust and tense relationships, and it was with a little hidden irony that Latham entitled his first report 'Trust and Money'!

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