

**THE IMPACT OF THE EUROPEAN
CONSTRUCTION PRODUCTS DIRECTIVE ON UK
CONSTRUCTION PRODUCT MANUFACTURERS**

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List of Abbreviations

BBA	British Board of Agrément
BCC	British Ceramics Confederation
BDA	Brick Development Association
BMP	National Building Materials Producers Association
BRE	Building Research Establishment
BS	British Standards
BSI	British Standards Institute
CAQDAS	Computer Assisted Qualitative Data Analysis Software
CEN	European Committee for Standardisation
CENELEC	European Committee for Electrotechnical Standardisation
CPA	Construction Products Association
CPD	Construction Products Directive
DETR	Department of the Environment, Transport and Regions
DOE	Department of Environment
DTI	Department of Trade and Industry
EC	European Community
ECB	European Central Bank
EEA	European Economic Area
EEC	European Economic Community
EFTA	European Free Trade Association
EN	European Standards
EOTA	European Organisation for Technical Approvals
ER	Essential Requirements
ETA	European Technical Approvals
EU	European Union
FDI	Foreign Direct Investment
FIEC	European Construction Industry Federation
GATT	The General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
ID	Interpretative Documents
ISO	International Organisation for Standardisation

List of Abbreviations Continued

NAD	New Approach Directives
MOAT	Methods of Assessment and Testing
OECD	Organisation for Economic Cooperation and Development
SEM	Single European Market
SIC	Standard Industrial Classification

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Abstract

The research is based on the European Directive aimed at harmonising standards for construction products. Harmonised standards remove technical barriers to trade allowing manufacturers to sell their products anywhere in the European Economic Area (EEA) provided the product complies with the standard and has affixed the CE marking. This should lead to greater competition in all EEA markets.

A review of relevant literature covered three distinct areas; developments of the European Union and the Construction Products Directive (CPD), the UK construction industry and materials sector and strategic management concentrating on market barriers and entry strategies. The research combined these areas together by investigating the impact of the CPD on the UK construction product manufacturers specifically considering the strategic decisions of the UK brick industry. As there was little previous empirical research into this area, data was generated through exploratory interviews with manufacturers and bodies involved with the UK implementation of the Directive, through a self-completion postal questionnaire survey with manufacturers from six product groups and by a case study approach used to examine the UK brick industry.

The research demonstrated that the Directive is having little impact to date on the strategic decisions of UK construction product manufacturers. Also, there are a disturbing number of producers that were not aware of the Directive and its possible implications. By applying previous research findings to the UK brick industry, conclusions were drawn highlighting the specific nature of this industry and identifying specific characteristics that influence its competitiveness. The Directive and the UK brick industry have never previously been examined in such a manner and areas for further research have been suggested.

CHAPTER ONE

INTRODUCTION TO THE RESEARCH

1.0 Introduction

The research seeks to investigate the impact of European product standards legislation on one particular industry, the construction industry. Both European legislation and the Construction Industry are vast areas on their own, so this research has been selective in the areas of study. It will specifically investigate the impact of one Directive, the Construction Products Directive (CPD)¹ and its effect on one area of the UK industry, the Product Manufacturers with particular reference to clay brick manufacturers. These areas have all been investigated previously as separate issues. This research will combine these areas and examine the impact they have together in particular concentrating on the strategic implications of the Directive on specific product manufacturers.

Speaking on World Standards Day, 14 October 1995, Martin Bangemann, European Commissioner, highlighted the importance and benefits of harmonised standards for the whole global community:

'mutually agreed and recognised standards can make production more efficient, increase customer choice and avoid unnecessary duplication of effort.'

'In a world of increasing technical complexity and change, common technical specifications are essential for the smooth functioning of the economy, both in Europe and the wider world.'

The study will examine the above points with respect to the construction products industry and identify how relevant these statements are with regards to this industry, in particular the UK brick industry. The UK construction industry and materials sector will be identified in relationship to the European construction industry and throughout the thesis if it is not specifically identified as UK or European, it should be read as referring to the UK industry.

1.1 Research Interest

The research interest stemmed from having spent a year living and studying in the South of France as part of an undergraduate programme. The different characteristics

¹ To prevent confusion and repetition, in this thesis the Construction Products Directive will be referred to hereafter as the Directive or the CPD.

that comprise regional as well as national construction industries were clearly evident and at this time it was very difficult for contractors and producers to gain entry into these different markets. The CPD was introduced to help remove some of these disparities and the original research proposal was to compare how the Directive was affecting not only UK manufacturers but also to compare with other EU member states. This has not been possible mainly due to financial constraints and to the slow implementation of the Directive. This area is still of interest and it is suggested as further research in chapter nine.

1.2 The Construction Industry

The Construction Industry plays a major part in any country's national economy. It accounts for between 5 and 15% of the Gross Domestic Product in most countries. It accounted for almost 10% of GDP in the European Union and 11% for the UK in 1999 (FIEC, 2000). A high proportion of the value-added, employment and technological innovation created by the industry is generated indirectly through the activities of the producers and manufacturers of construction materials and components. In 1998 the consumption of building products in the EU amounted to approximately 147 billion EURO, and it is estimated that materials can account for about 40% of the value of all construction work (NEDO, 1978; Latham, 1994). This figure can increase to as much as 60% of the value if the project involves specialised materials and construction systems (NEDO, 1978; Good, 1986; Dawood, 1994). This clearly shows the importance of the materials and components industry, yet in the UK for 1999, there was a trade deficit of over £2.1 billion for construction products (DETR, 2001a).

Recent EU and UK industry reports have all highlighted the need for the construction industry to improve on productivity and competitiveness. The materials industry has been specifically targeted for its lack of competitiveness in some areas and for its slow implementation of harmonised European product standards (Latham, 1994; Egan, 1998; EC, 1997; Foresight, 2001). This study identifies the important role that the materials industry plays within the construction industry, the implications of the CPD on the UK materials industry and how UK manufacturers, in specific product groups, are dealing with this new Directive.

The construction materials sector is vast and the research has identified six product groups which are examined in a postal questionnaire survey, these being Portland cement, laminated glass, clay bricks, mineral wool insulation products, copper pipe and fittings and builders woodwork. The research then further examines the UK brick industry by interviews with manufacturers and Trade Associations. The brick industry was used as a case study as it has particular characteristics that can be identified within the materials sector, such as a need to be located near raw material supplies rather than markets and a high reliance on demand and trends of the construction industry. These characteristics could also be affected by the CPD and influence the strategy of the manufacturer. By using the brick industry for analysis the research hypothesis can be tested.

1.3 European Legislation

The Treaty of Rome, 1957, laid down the objectives for the Community including the removal of not only customs duties on trade but also of 'all other measures with equivalent effect' (EC,1957). It embraced not only merchandise trade but also the free movement of persons, services and capital. To implement these objectives, Directives were introduced, with specific requirements, identical for each Member State. However these Directives became more complex and difficult to administer and only managed to slow the process down.

Certain Member States also started introducing other barriers to protect their home markets, such as national standards, especially in times of recession and growing unemployment. To help reduce this and also to speed up the process of meeting the objectives of the Treaty of Rome, Lord Cockfield, the then Commissioner for the Internal Market, introduced in 1985 the White Paper 'Completing the Internal Market'.

The White Paper identified three specific areas where barriers needed to be removed to help provide free movement of goods, labour, services and capital (EC, 1985). Those being:

- Physical frontier controls on goods and individuals.
- Technical meeting divergent national product standards, technical regulations and conflicting business laws.
- Fiscal taxes on consumption, i.e. VAT and excise duties.

This research is concentrating on the area of technical barriers to trade. These are preventing European companies growing to the scale that they can compete with their international competitors. Business and industry in the EC realised that the excess of different technical standards for individual products manufactured by different member states, seemingly for health, safety and environmental reasons, was preventing companies from developing to global competitors. In 1985 the Council of Ministers agreed on introducing a 'New Approach to Technical Harmonisation and Standards' that led to Directives being less prescriptive and would therefore increase the production of Directives.

The Single European Act 1987 was introduced to act on the White Paper, and its major tool for succeeding was the introduction of qualified majority voting. This would help to speed up the decision making process and therefore the implementation of the SEM.

The Construction Products Directive (89/106/EEC) was introduced to Member States for ratification in 1988 and is one of the measures introduced to try and remove technical barriers and promote movement of goods in relationship to the construction materials sector. It was implemented into UK legislation as the Construction Products Regulations 1991. The Directive states six Essential Requirements for protecting health, safety and the environment for construction products when incorporated into the construction works. The European Standards (EN) and the European Technical Approvals (ETA) are formulated incorporating the relevant Essential Requirements and the method of testing and certifying the product. If the product qualifies for an EN, it can then affix the CE Marking and the product can then be sold legally within the Member States. Harmonised standards and testing procedures should mean that product manufacturers will no longer have to commit extra time and money having their products approved for another member state when it already meets the standard of its own country.

The expected benefits to the end user should come in the reduction of cost as the market opens up to products that are produced more cheaply than the home market. The home product manufacturer will no longer have the advantage and must reduce costs to be more competitive. This should also lead to a wider choice of products being available.

As the Directive is a relatively new piece of legislation and is still not in full implementation, at the time of writing the thesis there is only one full harmonised European standard under the Directive, there are few investigations into this area. The research aims to address this gap by concentrating on the impact of one particular area, the strategy for brick manufacturers.

1.4. The Business Environment for Producers

The aim of this Directive is to remove technical barriers to trade for construction products within the EU and therefore make the market more competitive. To meet this new 'competitive' climate, product manufacturers will need to adapt their strategy to this new environment, which will have two main effects on UK Producers; they will have to be more competitive in existing markets and/or look to enter new markets such as in the EU.

Strategic management research to date has concentrated on other industry sectors and although the construction materials sector is categorised as a manufacturing industry, it has specific characteristics that make it require considering separately. These characteristics are examined in chapter two and in more detail specific to the UK brick industry in chapter eight. Chapter five examines the research into business strategy analysis and identifies the models to be applied to the brick industry analysis. The work of Michael Porter (1980a) has been adapted and applied to develop a competitive analysis of the brick industry. A SWOT analysis was also carried out on the brick manufacturers to identify the factors affecting the industry and to apply these to the adaptation of Porter's model. Research into market entry barriers and entry strategy has been examined (Bain, 1956; Layton, 1971; Porter, 1980a; Karakaya and Stahl, 1989). To succeed the manufacturer must choose the most advantageous market entry option that matches its market scope, resources and capabilities and also the entry barriers of that market. The UK brick industry has been examined to identify the market entry barriers and therefore the optimum entry strategy comparing the results with previous research findings.

1.5. Summary

The introduction presents the three areas that this research concentrates on, firstly the construction materials sector and identified product manufacturers, secondly the

Directive and finally the strategic decisions of a particular industry, the UK brick industry. Also it has been identified that although these three areas have been investigated to varying extents previously, they have not been investigated as to the impact that the three have together. That is to say, the impact of the Directive on the strategy of UK construction product manufacturers. The research aims to fill this gap.

2.0 Research Hypothesis

The purpose of the study is to test the hypothesis that with the introduction of the CPD and harmonised European standards and testing procedures, construction product manufacturers will have to adopt a strategy that will ensure their competitiveness and survival in the SEM. In addition there is very little research into the strategy of construction product manufacturers in the context of the construction industry as opposed to factory manufacturing and the research contributes to this gap. In this respect the research hypothesis is as follows:

'The Construction Products Directive will impact on the strategic decisions that UK Construction Product Manufacturers make to changes in their business environment.'

The research hypothesis can be broken down into areas that will be investigated both separately and together to completely test it. The first section of the thesis focuses on the evolution of the Directive and explains its implementation with regards to the construction products industry concentrating on two distinct areas. Firstly, the awareness of the manufacturers to the Directive and its implementation are tested and secondly, the expected benefits of the Directive as identified in the Cost of Non-Europe Report (EC, 1986) are compared with present day results. Exploratory interviews and a questionnaire were the data collection methods used to investigate these areas.

The second section focuses on the strategic decisions that manufacturers are making in response to the introduction of this Directive and the change to their markets. The questionnaire developed the sample and the areas to be investigated further. The UK Brick industry was used as a case study to test the impact of the Directive on the manufacturers strategic decisions.

Chapter six identifies in further detail the stages of development from the initial research question through to the final hypothesis and sub-hypotheses.

3.0 Research Aims and Process

The aim of the research is to assess the CPD and its impact, on UK Product manufacturers and their markets. This impact could be direct or indirect, for example a direct impact would be on the manufacturers' strategy to enter new markets or to remain competitive in existing home or international markets. The results should indicate whether the Directive is meeting its objective, creating European Harmonised Standards for construction products and helping to produce a 'level playing field' for trade. Also they should show whether the UK Producers see the Directive as having an impact and whether manufacturers are addressing this impact in their strategy.

Research should identify the information required to address the issues, problems or processes and then ascertain the data gathering design and methodology best suited to the information, provide interpretation of the results and present arguments, discussion and critical evaluation of the findings. In this research a mix of quantitative and qualitative techniques have been used and the process was as follows:

1. Conduct a literature review on;

- ❖ The Directive.
 - To evaluate the reason why it has been introduced.
 - To investigate how the CPD will work in practice and the problems of implementation.
- ❖ The UK Construction Industry and to evaluate the importance of Construction Product Manufacturers within this industry
- ❖ Strategic and marketing management.
 - To investigate and identify the strategies that industry must maximise to gain the full potential benefits from this Directive and the Single European Market (SEM).

The literature reviews were carried out to refine the research topic and to identify the most suitable methods of data analysis.

2. Survey a sample of major UK Producers and organisations involved in the formulation of the CPD for the UK to explore the initial research question and through semi-structured interviews evaluate their response to the Directive to develop the research project.

The results of the interviews led to refinement of the research and the hypothesis.

3. Survey Producers of the sample product groups; laminated glass, clay bricks, Portland cement, copper pipes, mineral wool insulation and builders woodwork, by a self-completion postal questionnaire. The questionnaire tests both Technical and Marketing Divisions on awareness and implications of the Directive on their Product. It also compares the EC's expected benefits with industry's own view.

The results of the survey were used to identify the sample and the structure for the case study interviews.

4. Examine the strategic decisions of Clay Brick Manufacturers by case study interviews. Develop an industry competitive analysis profile adapted from previous research findings.
5. Develop, through this research, proposals for further research into the construction materials sector.

Chapter six examines the research methodology for this study and details the techniques used to carry out the research.

The research findings are not aimed at the creation of a new base of learning, but rather the exploitation of existing knowledge through applied research. According to Beveridge (1957), applied research is, 'a deliberate investigation of a problem of practical importance, in contradistinction to pure research done to gain knowledge for its own sake'. Where the application of existing knowledge might be limited to finding a solution to a particular problem, then by seeking to understand the underlying principles, it is intended, as with this research, to achieve a wider general application. As European Standards are still being produced and the target of a 'level playing field'

has yet to be achieved, this research will identify areas of research that can be investigated further that are outside the scope of this work.

4.0 Thesis Structure

The thesis has been structured so that chapters two to five introduce the three subject areas by identifying and examining the literature of the UK materials industry within the context of the UK and European Construction Industry, the development and implications of the CPD and strategic management issues related to market analysis. Chapter six identifies the research design and methodology. Chapters seven and eight deal with the examination and analysis of the results from the survey and the case study interviews. The final chapter summarises the conclusions of the research, its relevance and recommends further study. The content of the chapters is detailed further as follows:

Chapter two introduces the construction industry highlighting its characteristics and importance to the economy. Europe consists of different member states with differing traditions, religion, culture, geography and climate. These are traits that cannot be changed by economic and political integration but can be seen to play an important role in the European Construction Industry. The different characteristics of member states construction industry will be outlined. The construction materials sector's importance to the industry is identified and the product groups that have been selected for the survey are evaluated. The Cost of Non-Europe Report (1986) is identified and the costs and expected benefits of legislation for harmonised product standards and testing methods are discussed.

Chapter three provides an overview of the legislation within the European Union concentrating on Directives and the Construction Products Directive. It highlights the importance of the CPD, its development, implementation process and problems.

Chapter four considers the concept of strategy and its development. As this area is the most developed in terms of academic research an overview into the subject of strategic management is provided.

Chapter five considers strategy alternatives for market entry. Market/product analysis models are examined and the most suitable ones identified for applying in the case study. Market entry barriers and possible entry strategies are identified and evaluated in relation to construction product manufacturing.

Chapter six considers the research methodology and identifies the methods to be used in this project. The initial research interviews are detailed and the results summarised highlighting their use in developing the hypothesis and the sub-hypotheses to be investigated.

Chapter seven considers the questionnaire design and summarises the results of the responses. The results were compared with previous studies on the expected benefits of the Single European Market. The results were used to develop the case study interview structure and content. Also the product group sample was taken from the producers surveyed.

Chapter eight is in two parts. The first identifies the characteristics and structure of the UK brick industry and the second presents the details and results of the case study interviews. The manufacturers and the trade associations interviewed are representative of the industry to draw conclusions on the UK brick industry. The results of the interviews were analysed and compared to previous research findings on areas of the UK materials sector and market entry barriers and strategy. A SWOT analysis matrix and a Competitive Analysis Model of the UK brick industry were also produced.

Chapter nine summarises the conclusions from the research and identifies the contribution to existing knowledge by this work. Suggested recommendations for further areas of study are also identified.

5.0 Summary

This chapter introduces the research topic and the structure of the thesis. The research methodology and the hypothesis to be tested are also highlighted. As identified in the introduction, the construction materials sector has had relatively little research carried

out related to strategic issues yet its importance to the construction sector is clearly evident. The CPD is a new Directive and its full influence on markets is still yet to be seen, but product manufacturers must be aware of the implications on their markets, at home and abroad. The research investigates the Directive and its impact on the product manufacturers and ascertains if the Directive is achieving its aim, removing trade barriers and helping create a 'level playing field' for construction products in the Single European Market. It also identifies if the manufacturers fully appreciate the aim of the Directive and have implemented a strategy to take advantage of the new opportunity or to protect their existing position.

CHAPTER TWO

THE CONSTRUCTION INDUSTRY

AND

THE MATERIALS SECTOR

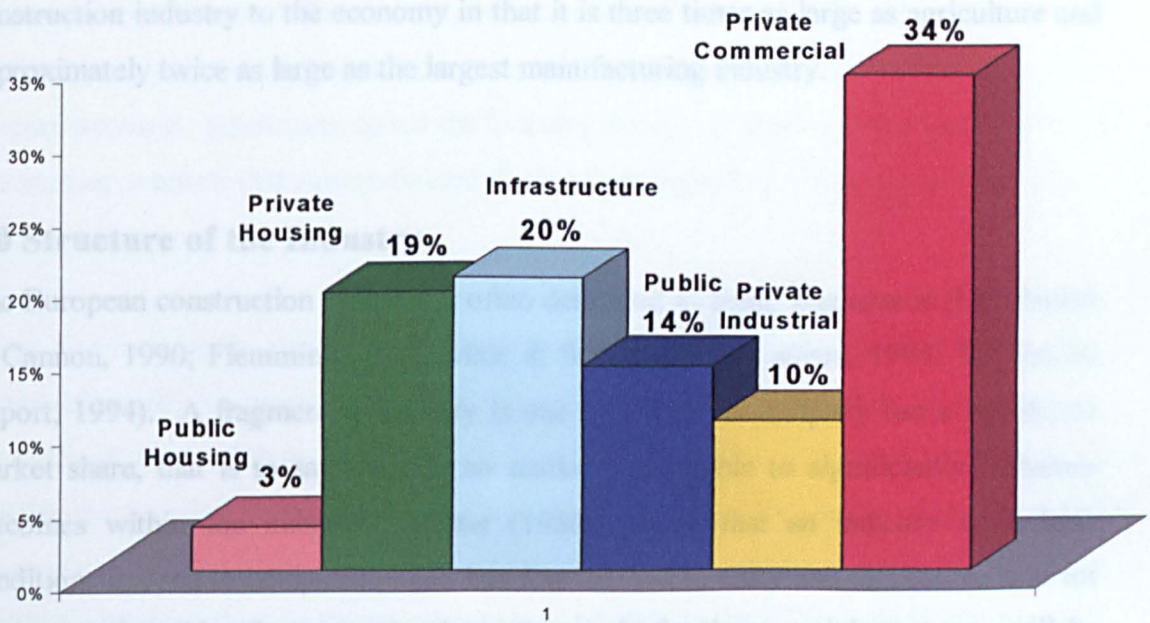
1.0 Introduction

This chapter aims to identify the importance of, firstly, the construction industry within a national economy and, secondly, the importance of the materials sector within the construction industry. The characteristics that make the construction industry different from other industries, such as manufacturing, will be identified and examined as to how they impinge on the materials sector. The chapter will initially consider both the European and UK construction industry and towards the latter stages will focus on the UK and in particular the materials sector.

The Cost of Non-Europe Report specifically looked at the expected benefits of the SEM measures on the building products industry and this chapter will also identify its key areas and how the CPD aims to achieve these expected benefits.

The construction industry is not a single industry, but is composed of several different markets, such as building, civil engineering, refurbishment and maintenance, and these can also be further sub-divided. Figure 1 shows the breakdown of the UK building sector for 2000 by volume of new orders. It clearly shows that the majority of work in this sector is by private funding.

Figure 1: Volume of New Orders: By Type of Work, 2000



Source: DETR, 2000a, Housing and Construction Statistics,

Also included within the construction industry is the materials and product sector, which comprises raw materials through to complex products and systems and a wide variety of professionals, skilled and non-skilled labour involved from inception of a project to completion, even demolition and recycling of products.

The construction industry accounted for 11% of the UK Gross Domestic Product (GDP) in 1999 and almost 10% in the EU (including the UK) (FIEC, 2000). This makes construction the largest industrial sector within the EU. In 1999 the construction industry contributed 28.1% of industrial employment and 7.5% of total employment in the EU and it is reported that every job created in construction, generates two further jobs in related sectors (EC, 1997). It is for the above reasons that the construction industry is one of the most important in the world economy.

The construction industry accounted for the largest share of all investment by public bodies and private undertakings in fixed assets and in private and public housing construction. In 1999, it produced investment goods generating 47.6% of gross fixed capital formation in the EU (FIEC, 2000). The total EU construction industry output for 1999 equated to 12% more than the total construction output for the USA and 23% more than Japan, with the UK construction industry contributing nearly 14% to the EU output (FIEC, 2000). Fleming (1988) identified the importance of the UK domestic construction industry to the economy in that it is three times as large as agriculture and approximately twice as large as the largest manufacturing industry.

2.0 Structure of the Industry

The European construction industry is often described as being fragmented (Hillebrandt & Cannon, 1990; Flemming, 1988; Male & Stocks, 1991; Latham, 1994; WS Atkins Report, 1994). A fragmented industry is one in which no company has a significant market share, that is to say there is no market leader able to significantly influence outcomes within the industry. Porter (1980a) stated that an industry with these conditions is open to competition and has few barriers to entry and this can be said for the contracting side of construction but not entirely for the materials sector as will be discussed in later chapters.

The recent report *Rethinking Construction* (Egan, 2000) highlighted that fragmentation in the construction industry inhibits performance improvements. It also stated that the level of fragmentation was both a strength and weakness; providing flexibility to cope with variable workloads in times of recession but the wide use of subcontracting has led to reduced efficiency due to lack of continuity in contracting teams.

A fragmented industry usually comprises of a large number of small and medium sized companies and only a few large companies. It also means that there is a high incidence of privately owned companies. All these characteristics are common to the construction industry. There were approximately 163,000 construction companies registered with the DETR in 2000, with most employing less than 8 people (DETR, 2000b). Porter (1985) stated that a fragmented industry is populated by many competitors who are in a weak bargaining position with respect to both buyer and supplier groupings and profitability is marginal. Again this is often seen as a characteristic of the construction industry.

Langford and Male (1991) described the construction industry as being amorphous and diverse and therefore difficult to define. They stated that the easiest way to define the industry is by its output and those firms involved in that output. Many researchers have documented the characteristics of the Construction Industry and see its main feature as its variability of demand (Shutt, 1988; Hillebrandt & Cannon, 1990). The variability of demand is seen as what shapes the nature of the industry and therefore the firms that operate within it. As already stated the industry is not one single market but a series of overlapping markets that can be divided further by geography, size, type and complexity of the work.

Often construction is compared to manufacturing and service industries, but as the construction industry does not fall automatically into a single category, it is therefore too difficult to confine it to one or the other. Newcombe (1976) observed that to classify construction along with banking, insurance and retailing was a misnomer. Yet construction professionals offer a service and not a manufactured product. Fleming (1988) highlighted that the site based nature and individuality of projects in construction make it difficult for the existence of many of the technical scale economies that are achieved in manufacturing industries. Hillebrandt (1984) stated that contractors

undertake to organise, move and assemble various materials and component parts so that they form a composite whole of a building. The product that the contractors are providing is the service of moving materials and of assembling and managing the whole process and not the manufacture of products. Halpin and Woodhead (1998) termed this as the 'project format', the management focus is on the planning and control of resources within the framework of the project. As the construction industry has developed over the last twenty years, the role of the contractors and professionals within the industry has changed and the management of construction work is becoming separate to the actual construction activity.

2.1 Characteristics of the Industry

The WS Atkins Report (1994) into the Competitiveness of the European Construction Industry identified several specific characteristics that differentiate construction from any other industry. They are as follows:

- It is a heterogeneous and fragmented sector, which depends on a large number of very different professions
- Logistical and transport aspects are very important as the industry is one of the most geographically dispersed sectors with distinct regional differences
- The final product is one of the few non-transportable industrial products, adaptable to a variety of uses and representing one of the most durable of human artefacts. It forms the physical infrastructure for living and working, for production and transportation and for essential services. Half of construction projects relate to renovation.
- Most construction projects are prototypes
- Investments in machinery, tools and other elements have to be depreciated over a shorter period than is usual for other industrial sectors
- The entry level for new contractors is relatively low because the need for operational capital is small
- It is closely linked to the economic cycle, and is affected by seasonal climatic variations

- The sector is very labour intensive, with high mobility of the workforce and growing skills needs as construction technology becomes more sophisticated. The duration of contracts is often linked to the length of the site construction phase. Accident rates tend to be high
- The sector generates an enormous quantity of construction waste and demolition materials, more than 270 million tonnes per year. The sector represents the second largest contributor to CO₂ emissions. In some Member States the shortage of natural construction materials is also a problem.

One key characteristic of the make-up of construction output is that more than three-quarters of it is in projects of less than £2 million and small and medium-sized contractors undertake much of it (WS Atkins, 1994). This will remain an important market, especially with the increase in repair and maintenance work.

Raflery (1991) identified the three major factors that the World Bank highlight as influencing the structure of any countries construction industry:

1. Type of Work to be Done
2. Choice of Technology
3. Social and Economic Environment

Although these identified characteristics and factors concentrate most on the production and contractor issues, they are also very relevant to the materials sector although not specifically mentioned. For example, the brick industry relies heavily on the housing market, which is heavily influenced by Government policy and fashion trends by designers (social and economic environment factors).

2.2 The European Construction Industry

Oliver-Taylor (1993) identified several factors that govern how the construction industry is structured and organised:

- role of government
- state of capital markets
- taxation
- nature of clients

- design team organisation and responsibilities
- organisation and responsibilities of contractors
- role of building control authorities

All these factors are a product of economic circumstances, culture and history and as a result the industries of each member states have evolved differently. National construction industries used to largely exist in isolation from each other and therefore countries have developed their own distinctive contracting systems adapted to suit their own particular needs and traditions. The site-specific nature of production and the role of the state as the predominant client also limited trade in construction services across EU frontiers.

There are broad similarities between the European Member States and they can be categorised as follows (Chapman & Granjean, 1991; Oliver-Taylor, 1993; Cooke & Walker, 1994)

2.2.1 The British System - UK and Ireland.

Although English, Scottish and Irish laws and procedures differ, there is a common approach used. Common technical standards are used and information gained is from similar sources.

2.2.2 The Northern European System - Denmark, Germany, the Netherlands, Austria, Finland and Sweden.

These countries tend to be highly regulated with rigid checking authorities to ensure adherence to statutory requirements. There are comprehensive contractual relationships and clear definitions of roles and responsibilities between the parties involved. Clients expect and receive a high standard of product that is reinforced by a comprehensive set of standards.

2.2.3 The French System - Belgium, France and Luxembourg.

This system is regulated through a complex arrangement of statutory and legal requirements and these countries also operate a ten-year insurance policy for the building that can restrict new competitors, technologies and products. Contractual relationships are clearly stated and standard contractual procedures are in place. In

some areas there is a strong link between commerce and politics that can make it difficult for contractors from outside a region to obtain public work contracts. Although there is the decennial insurance policy in place, there can be a variable attitude to quality, especially on small to medium projects. The standard organisations are not as formal as in the UK and the standards are not as comprehensive.

2.2.4. The Mediterranean System - Greece, Italy, Portugal and Spain.

These countries can be highly bureaucratic with public administration slow to respond and public tender procedures lengthy, inefficient and expensive. There are standard contracts for public works but the arrangement for private contracts depends on the 'flexibility' of the parties involved that can limit access to new competition. There is a variable attitude to quality and the national standards systems that are in place have only a slight influence on the standards of work. The quality depends on how much the client is prepared to pay. Business and politics are very closely linked and networks of relationships are fundamental to the way business is carried out. The economic conditions in the countries can be variable with high inflation rates and a lack of funding for contracts has been a problem in the past. This should reduce as these countries, especially Greece and Portugal, develop through European social and economic policies.

The measures that are being introduced by the Commission aim to remove these variances so the systems become more in line. However, Europe is geographically of such a nature that it will always be divided in some form; the climate is just one example. It can be argued that each nation is not a single entity on its own, for example, the UK has within it Scotland, England, Wales and Northern Ireland, all with different cultures, climates, language and religion.

2.3 Summary

At present within the UK construction industry, there is a climate for change. There have been five major reports into the structure and performance of the UK Construction industry over the last fifty years. Two of these reports have taken place in the last few years, the Latham Report, Constructing the Team in 1994 and the Egan Report, Rethinking Construction in 1998. The major difference with these two reports is in the

fact that follow up action has taken place, such as the Governments Best Practice Programme and an update on Rethinking Construction in 2000.

The UK and EU reports into construction all highlighted the need for the industry to become more competitive and efficient so ultimately the UK can compete in European markets and European firms can compete internationally. The EU has put in place legislation aimed at standardising some of the different contractual procedures and to harmonise products standards. These measures are aimed at opening up the European markets to all contractors and manufacturers.

This research is concentrating on the construction materials and components industry which is a major part of the construction industry and influences the majority of the characteristics and factors that are specific to construction. Traditionally materials that were used in construction depended on the raw materials that were available in the immediate vicinity. This led to different building styles being used and these are still influencing construction, especially in housing, in today's environment. These differences can be seen both regionally and between countries; the most obvious example in housing is the use of concrete in the Mediterranean countries and the use of bricks in the UK. The CPD does not aim to remove these kinds of differences in construction and a lot of the characteristics that have been identified will remain within the European construction industry, as they cannot be harmonised.

3.0 The UK Construction Materials and Components Sector

3.1 Structure

The materials sector has the largest single input into the construction industry estimated at approximately 40% of the value of all construction work and this figure can increase to as much as 60% (NEDO, 1978; Good, 1986; Dawood, 1994). The sector is characterised by its diversity and encompasses more than 30 different industries producing a variety of materials, products and components from basic aggregates to complicated service systems. In 1998 the sector also comprised of approximately 15,000 intermediaries which included agents and retailers (Davis Langdon & Everest, 2000).

In 1998, 15% of the large manufacturers produced 80% of the output and 85% had a turnover of less than £5 million per enterprise (Davis Langdon & Everest, 2000). Firms with a turnover of £1-5 million accounted for around 20% of the turnover of the whole industrial sector and those with less than £1 million turnover accounted for a further 8%. The industries involved in the manufacture of building materials employed approximately 400,000 people (Davis Langdon & Everest, 2000) and accounted for approximately 4% of the national GDP (Alliance of Construction Product Suppliers, 1998).

As the characteristics of the material producers are so dissimilar, it is difficult to draw general comparisons within the construction materials sector. However, it is recognised that the sector can be classified as either heavy or light production (Jordans Survey, 1980; Davis Langdon & Everest, 2000):

- **Heavy**

Products that rely heavily on material extraction and are the main components of basic construction e.g. cement, brick, glass.

- **Light**

Products that use materials to craft something e.g. fitting out trades like joinery.

These classifications have been used to identify the product groups to be used in the questionnaire survey and this will be detailed further in chapter seven.

3.2 Government Regulations and Legislation Affecting the Materials Sector

The UK Government impacts on the materials sector through various forms of regulation and legislation. These include:

- **Planning controls**

This affects producers that need to extract natural resources and it can be a minimum of 4 years to gain permission to use new sources, e.g. a quarry. Also it affects the materials that may be used in projects, i.e. Cotswold Stone in areas in the Cotswolds.

- **Building Regulations and standards**

This relates to the specification of materials and ensures a standard of quality.

- **Environmental regulation**

This affects the materials specified from the amount of energy used in manufacturing, its efficiency in use and its ability to be recycled.

- **Company and Employment legislation**

This relates to ownership and overhead costs in production, i.e. the working week.

- **Competition policy**

This affects the restructuring of the industry, ensuring no monopolies are formed and restrictive practices used to stop new entrants into the market.

All of the above points have either been or are going to be revised to implement European Directives. This is to aid competition and open up the European markets and to prevent national regulations being used as barriers to trade. There is at present no Directive specifically aimed at harmonising national planning legislation or Building Regulations, however planning is affected by Environmental Directives, and the Construction Products Directive introduces harmonised technical standards and European Design Codes that should standardise design and technical procedures.

Reports commissioned by the Government and/or the trade associations have all identified that the materials sector, especially the smaller firm, are concerned with the increased cost implications of compliance arising from all these new legislations (Davis Langdon & Everest, 2000; CERAM, 2000). This area is investigated further in the case study interviews to assess the impact of European legislation, namely the CPD, on UK brick manufacturers.

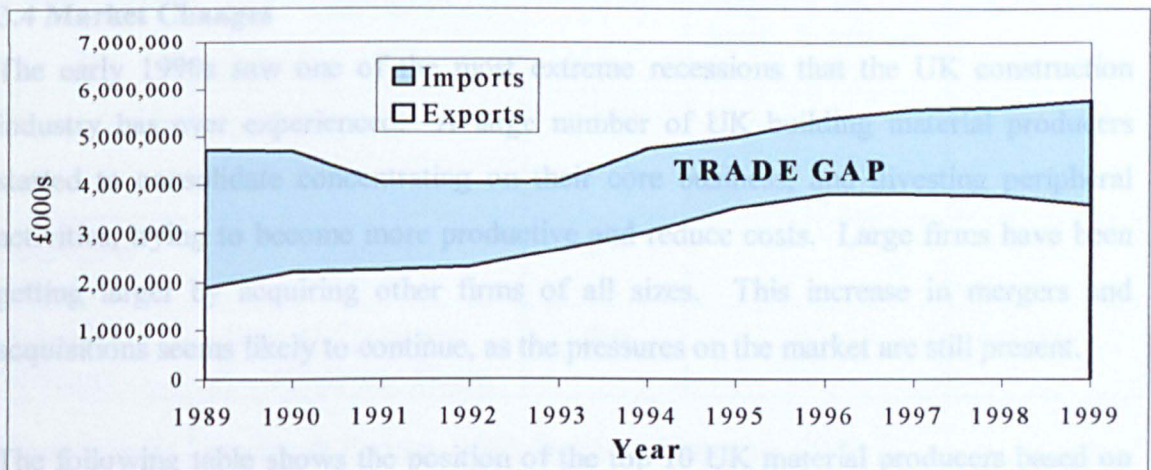
3.3 The UK Construction Materials Trade Position

To gain precise statistics and data on construction material producers is difficult. The construction materials sector is not identifiable as a discrete industrial sector in official statistics and data is published in several formats; by production, stocks or deliveries, imports/exports or company financial positions. This makes it very difficult to develop economic indicators for the sector. Producers within the construction materials sector also produce goods that are not just used in construction and they may even be

classified under a different industry by the Standard Industrial Classification (SIC). Also some products are supplied to make further materials such as cement for ready mixed concrete, which can lead to double counting in the statistics. There is also the added problem of disclosure restrictions within certain products, namely cement and flat glass. Certain material statistics are used as the main indicators of construction activity, for example brick deliveries are used as an indicator for housing output.

The construction industry is often regarded as an example of a non-tradable activity, yet this is not the case for building products. In 1999 the UK consumption of building materials was estimated at approximately £33 billion of which almost £6 billion is imported and less than £4 billion of UK production is exported (DETR 2000a). Agapiou *et al* (1998) identified that the UK trade deficit in construction materials and products accounts for approximately 15% of the total visible trade deficit.

Figure 2: Value of Overseas Trade in All Building Materials and Components



Source: DETR, 2000a, Housing and Construction Statistics.

There was a decline in the trade deficit in the mid 1990's but this was not through the industry becoming more competitive in home and export markets. Flanagan *et al* (1995) and Worrel *et al* (1995) identified that improvements in the construction products trade balance were a result of the recession in the UK economy rather than improvements in industrial performance. When there is an increase in construction output, the manufacturers cannot cope with increased demand due to lack of capacity and imports increase to fill this shortfall. When there is a downturn in work, imports

drop. High export figures could be due to high construction output in other countries and/or low UK construction output and therefore UK producers looking for new markets. High import values could also be due to a high pound value on the exchange market.

Imports have always been a problem for UK manufacturers (Building & Civil Engineering EDC, 1980: 1983). The UK market is a relatively 'open market', standards are voluntary and governments have encouraged competition. However, the advantages to be gained from the Single European Market are greater for UK companies than for those entering our market. The introduction of harmonised European Standards should lead to UK Producers having greater access to markets that have otherwise been 'closed' to their products. Ormerod (1988) and Pinney (1993) highlighted that there will be easier access to foreign markets, but possibly less change in the reverse direction because the UK market has always been relatively open.

3.4 Market Changes

The early 1990s saw one of the most extreme recessions that the UK construction industry has ever experienced. A large number of UK building material producers started to consolidate concentrating on their core business, and divesting peripheral activities, trying to become more productive and reduce costs. Large firms have been getting larger by acquiring other firms of all sizes. This increase in mergers and acquisitions seems likely to continue, as the pressures on the market are still present.

The following table shows the position of the top 10 UK material producers based on turnover in 1999 and their position in the European ranking.

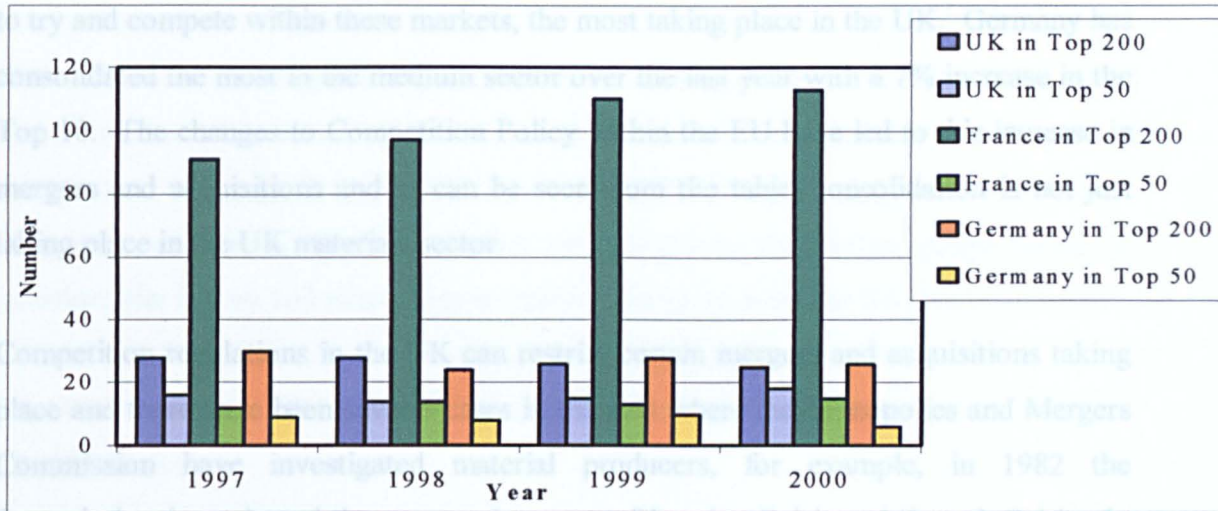
Table 1: Top 10 UK Construction Material Producers in 1999 on Turnover

Company	Principal Industry	Turnover £m	M & A Details	EU Ranking 2000
RMC Group	Aggregates / Ready-Mixed Concrete	4,410	Acquired Rugby Group, Dec. 1999	5
Pilkingtons	Flat Glass	2,709		8
Blue Circle Industries	Cement	2,303		12
Hanson	Aggregates / Bricks	1,825	Acquired Pioneer, Nov. 1999	14
Caradon	Plumbing / Electrical Components	1,545	Acquired by Easco, July 1999 Acquired Weru, Nov. 1999;	25
BPB Industries	Plaster / Plasterboard	1,300		23
Tarmac Group	Aggregates	1,294	Acquired by Anglo American, March 2000	22 – 1999
Rugby Group	Cement / Joinery	1,020	Acquired by RMC Group, Dec. 1999	29 – 1999
Aggregate Industries	Aggregates	834		33
Heywood Williams	PVC / Metal Windows / Doors	690		42

Source: Davis Langdon & Everest, 2000; Building Magazine, 2000.

The low stock market value of UK producers has made them interesting to foreign competitors and also vice versa for UK companies. UK acquisition of foreign companies may also be helped due to the high value of the pound at present. The mergers and acquisitions that have taken place are not just between UK and European companies American companies have used acquisitions in the UK as a way to gain entry into the European market.

Figure 3 shows the breakdown of the top 200 material producers in Europe ranked on turnover considering the three largest EU countries; the UK, France and Germany.

Figure 3: Top European Material Producers

Source: Building Magazine, 1997, 1998, 1999, 2000

France had the largest number of Producers in Europe yet the UK had a higher percentage of that 200 in the Top 50 but less in the Top 10. The UK has also had the largest increase over the last year in Producers ranked in the Top 50 and this is because of the increase in mergers of medium sized firms. The following table shows that there has been an increase of 14% in UK companies ranked in the Top 50.

Table 2: Comparison of Percentage Ranking of Producers in the Top 200 of the EU: UK, France and Germany

% in Top 50 of 200	1999	2000
UK	58	72
France	12	13
Germany	36	23
% in Top 10 of 50	1999	2000
UK	27	22
France	31	27
Germany	10	17

Source: Building Magazine, 1999, 2000.

Table 2 highlights the fact that mergers and acquisitions are not just taking place by large producers, small and medium firms are merging and consolidating their businesses to try and compete within these markets, the most taking place in the UK. Germany has consolidated the most in the medium sector over the last year with a 7% increase in the Top 10. The changes to Competition Policy within the EU have led to this increase in mergers and acquisitions and as can be seen from the table, consolidation is not just taking place in the UK materials sector.

Competition regulations in the UK can restrict certain mergers and acquisitions taking place and there have been several cases in the past where the Monopolies and Mergers Commission have investigated material producers, for example, in 1982 the Commission investigated the proposed merger of London Brick and Ibstock Brick. In certain product areas, there is a high concentration of market turnover to a small number of firms that can lead to reduced competition. For example, 93% of cement production is carried out by the top 3 producers (Davis Langdon & Everest, 2000) and due to this, the Monopolies and Mergers Commission examined the acquisition of the Rugby Group by RMC and made certain recommendations before the acquisition could take place.

3.4.1. Distributors of Construction Materials

The importance of improving the supply chain in construction has been stated in numerous Government and trade association reports with several different initiatives in practice or about to be implemented to improve this situation, such as Breaking Down the Barriers and Partnering Agreements with producers, distributors and contractors. (Latham, 1994; Egan, 1998; CERAM, 2000)

Concentration is also taking place within the distributors of materials and there are concerns that this could lead to a breakdown in the link between customers' opinions and needs and the producers' provision (Agapiou, 1998). The next stage in concentration is producers' buying distributors and this has already happened with Meyer International, the second largest distributor in the UK, being acquired by the French material producer St. Gobain in March 2000. Smaller producers will have to look at branding to counter the consolidation of producers and distributors. Branding in building materials can simply mean name recognition as opposed to buyer preference,

but it is one way that the smaller producer can ensure that customers recognise their products.

The measures of the Single European Market are leading to market changes within all of the European construction markets and this research will examine whether these changes are taking place in the UK due to the CPD or because of market pressures. Chapter seven analyses the UK situation with regards to six product groups through a questionnaire survey and chapter eight examines in more detail the UK brick industry.

3.5 The Expected Benefits of the Single Market on Construction Product Manufacturers

The full benefits of the Single Market may be difficult to measure precisely because the ancillary benefits are unquantifiable. The 'Cost of Non-Europe' Reports 1986 commissioned by the European Commission and led by Paolo Cecchini looked into the expected benefits of the Single Market. The central conclusion of this unprecedented two year study was that effective implementation of the Internal Market programme would save European industry about 90 billion Euro, the equivalent of some 5% of the Community's gross domestic product (Cecchini, 1988).

The Report specifically looked at the EC market for Building Products, which in 1985, was worth 110 billion Euro (EC, 1986). The Report highlighted that although the nature of most building products suggests that there would be limited cross border trade, the transport costs for the heavy bulky products can double every 150 km travelled, import penetration for the four larger EC countries was 15% for Italy, 20% for Germany, 30% for France and 50% for the UK (Cecchini, 1988). This identified the industry as one that would benefit from the SEM measures, namely in the harmonisation of standards and testing procedures.

When the Reports results were first published it was claimed that they had been too optimistic. Featherstone (1990) highlighted that the Cecchini team, responsible for the Reports, stated that their forecasts were only estimates and had a margin of +/- 30% of accuracy.

A study by UBS-Phillips and Drew Global Research Group (1988) described the Report's expected benefits as being overly optimistic and at the top end of expectations. They believed that over the medium-term, it is more realistic that the EC's GDP would have a growth of between 2% and 4%. They also stated that the building materials and construction market would remain relatively unaffected by the internal market. The Centre for Business Strategy (1989) also concluded that the benefits had been exaggerated and reported that the fragmentation in the EC would not be greatly reduced by the successful removal of barriers. This is because the diversity of demand within the EC is caused by differing preferences, languages, cultures, climate, etc. that will remain largely unaffected by the measures of '1992'.

At this moment in time it may be considered that the Cost of Non-Europe Reports were probably over optimistic. However it is clearly arguable that the internal market will still bring benefits, and over time these benefits will be quantifiable.

3.6 The Impact of the CPD on Product Manufacturers

Unlike most industries, construction is both a service and a product. Prospective clients have an understandable preference for using construction companies that they know and have confidence in. This puts a high premium on having a physical presence in a given market and acquiring familiarity with the local environment. Such efforts would be to little avail if a construction company, having established itself in a particular market, was effectively prohibited from operating in it because the technical specifications of the construction products being used were unacceptable to the regulatory authority of the host country.

The Cost of Non-Europe Report estimated that the costs directly related to divergent testing procedures and standards as being 820 million Euro for the Community. Industry sited divergent national technical standards as the second most important obstacle to the creation of the internal market after administrative formalities and border controls. The longer-term gain from harmonisation of standards and testing is estimated at some 1.7 billion Euro, but only if the industry adapts itself to the challenge and improves its economies of scale (EC, 1986).

The operation of some 100,000 different technical specifications across European industry meant that European companies were losing billions of pounds because of duplicated product development, lost economies of scale and enforced competitive disadvantages in relation to their counterparts in Japan and the USA (EC, 1986). The cost of market fragmentation was put at some 38 million Euro a year, while their removal was estimated at generating an additional 70 million Euro in extra business (Cecchini, 1988).

The European Commission believe that the CPD will mean that companies can sell their goods and offer their services in any country of the Community without any additional formalities beyond those required in their home country (EC, 1992). To construction product manufacturers this will mean meeting the requirements of the new European Standards and therefore being able to affix the CE marking and legally sell their product anywhere in the European Union. Before the Single Market of 1992, a product manufacturer would have to produce different versions of the same product so that it would meet the requirements of that country's standards and also have the product tested in that country to prove compliance. This could often take a lot of time and money to gain certification. For example it took an Irish radiator manufacturer two years and nearly IR£100,000 to obtain the authorisations and standards necessary for distribution in the UK and it took a French steel girder manufacturer five years and a cost of approximately 4 million FF to obtain the German DIN standard (BIPE, 1988).

The larger manufacturers, who are already in the European market, do not see the benefits of the new open market being that major in terms of harmonisation of standards and they see the major differences when trading in a foreign country as being culture, tradition, taste, geography, climate and price. Peter Johnson (1993) of the Redland Group stated that,

'it is not enough that a customer can buy your products, you must also make him want to'.

All these issues are not addressed in the CPD so manufacturers will still have to make strategic decisions about entering into new markets and this will be discussed in more detail in chapters four and five.

Those companies already in the European Market look on the SEM as being lots of regional markets just like the USA. The USA is one country, with one main language, yet when selling into a particular state, you must be aware of its particular differences. The same will happen within the European Single Market. Johnson (1993) highlighted that to sell products into local and regional markets in the SEM, companies must place the technical obstacles that have been removed into the context of 'why people choose to buy our product from our company'.

The small to medium sized manufacturers may also see there being little change in their market in the immediate future because their market is relatively small and regionalised. They should have the cost advantage in delivery on the bulk items and the advantage of knowing the local industry. In the long term there could be casualties among smaller manufacturers as the larger firms reach the economies of scale to overtake the smaller manufacturers' cost advantages. It is for this reason that smaller manufacturers are looking favourably at mergers or acquisition by larger manufacturers.

This research is concerned with investigating the impact of the CPD on UK construction material producers and chapters seven and eight will examine this in greater detail. This section was to highlight some of the areas of concern to the materials sector. The immediate problem for manufacturers with the opening up of the construction market is the increase in non-UK designers and contractors winning contracts and using techniques and products that they are familiar with. An example of this was the refurbishment contract of the Colet Court, a Grade II listed Victorian school in Hamersmith, London. The contract was won by Danbuild, a Danish contractor and they imported tailor-made bricks, internal doors and sash windows from Denmark. The contractor claimed that it was 'cheaper to import Danish building materials than to buy British' (Construction, Weekly, 1990).

4.0 Conclusions

This chapter has identified the characteristics and structure of the European construction industry and also the UK construction industry. EU Directives are aimed at removing some of the disparities between member states construction industries but they will not

be able to remove those differences that involve local tradition, culture and geographical location. UK firms in construction, be they contractors, professionals or material producers will still have to consider these differences when looking to enter new markets.

The importance of the materials sector within the UK construction industry has also been highlighted and the various Government reports identified the need for the construction materials sector to be more integrated into the construction process. For the construction industry to meet the targets of improving efficiency in the next few years, the initiatives to increase integration of the supply chain must continue. The concentration of the UK and European products market and the distributors market could help this process. There are concerns that the concentration of the UK market will reduce competition but this should be reduced with the increased standardisation of the European market. Chapters seven and eight also examine whether the CPD has played a role in this market concentration or whether it has occurred due to economic and market considerations.

One of the areas that the CPD is aiming to harmonise is testing procedures and this has been identified as a barrier to trade. As highlighted in this chapter there will be different implications of the Directive to the large manufacturers compared to the small and medium sized firms. Removing this barrier should have the greatest impact on the small to medium firms, as some of the larger manufacturers have already been through the testing procedures and gained compliance with other countries standards. This will be analysed in more detail in both the questionnaire survey and the UK brick manufacturers case study.

The removal of these technical barriers to trade will also have an impact on contractors and clients and therefore an indirect impact on the product manufacturers. The major benefits to contractors and clients should be:

- more choice of product
- greater competition - leading to lower costs.

With competition, the clients should receive a higher quality product, dependant on the price they are willing to pay, because there will be more choice, greater price competition and more 'perks' offered by manufacturers or agents to help sell the products. Therefore it should not mean that standards drop because it will still depend on how much the clients are prepared to spend. Manufacturers will have to decide which market they want to supply. If they have the economies of scale, it may be the lower end of the market or if they are smaller they may aim for a specific market. These strategic decisions will be investigated further in later chapters.

Although the benefits estimated by the Cost of Non-Europe Reports are slightly over optimistic, there is little doubt that there will be benefits. For construction products these will not become apparent until the Directive is fully operational, which means harmonised European Standards and CE marked products. The questionnaire survey analyses some of the key points raised in the Cost of Non-Europe Report on the Building Products Industry to identify if, over ten years after the initial survey, there has been a change for UK product manufacturers.

CHAPTER THREE

**THE CONSTRUCTION PRODUCTS
DIRECTIVE**

1.0 Introduction

The Single European Act, 1987 identified 279 measures that needed to be adopted to achieve the Single European Market, construction products was identified as one such area. This chapter will identify the legislation that the European Union has put in place to harmonise standards and testing procedures for construction products and therefore remove a major technical barrier to trade within the European construction market.

Directives are the tools used to adopt these measures into Member States legislation and this chapter will identify the Construction Products Directive and its implementation into UK legislation. The CPD is different to other EU Directives and this will be outlined and the problems that this has led to in implementation will also be discussed.

2.0 European Legislation

Under the Treaties of Rome, the Council and Commission have certain means of enacting legislation; regulations, directives, decisions and recommendations and opinions, which have no binding force. A simple description by the Commission (EC, 1993) is as follows:

- **Regulation** - a direct legal force in all member states that does not have to be confirmed by national parliaments.
- **Directive** - binding on the member states and sets out the principles of the legislation but leaves the implementation to the national governments, within a stated time period.
- **Decision** - binding in its entirety on those to whom it is addressed.

This research is only concerned with the implementation of directives, namely the Construction Products Directive.

2.1 The White Paper of 1985

The White Paper identified the need for a distinction to be made between what was essential to harmonise, and what must be left to mutual recognition of national standards (EC, 1985). It was agreed by the Council of Ministers, that all technical standards and regulations have, more or less, the same foci; health, safety and the environment. The

Commission was then granted licence to abandon its traditional one-dimensional approach to technical harmonisation in favour of a new multi-dimensional strategy based on selective harmonisation and mutual recognition.

The production of harmonised technical standards and testing had been drastically impeded due to Article 100 of the Treaty of Rome that required a unanimous vote by the Council of Ministers. It was agreed that Articles 30 – 36 would be used to introduce legislative harmonisation. These Articles state that national governments are prohibited from adopting policies that constitute ‘arbitrary discrimination or a disguised restriction on trade between member states’. In the ratified Single European Act 1987, it amended the Treaty and, in Article 100a, introduced the principle of qualified majority voting for all measures ‘which have as their object the establishment and functioning of the internal market’ (EC, 1987).

Member states who continue to protect their national markets from Community competition by taking refuge in Article 36 of the Treaty, granting them the right to restrict imports because they do not conform to their ‘essential requirements’, will no longer have grounds for doing so. A Member State can only restrict products if they believe that there are grounds of public morality, public policy or public security; protection of health and life of humans, animals or plants; protection of national treasures possessing artistic, historic or archaeological value; protection of industrial and commercial property.

2.2 Mutual Recognition

The Commission see mutual recognition as the speediest way to achieve free movement, but it cannot completely replace harmonisation. This is essential in the following two cases:

1. When residual barriers are justified by essential requirements such as public health, technical security or consumer protection.
2. When harmonised rules and standardised products are necessary for industry in order to obtain economies of scale in a homogeneous market. (EC, 1992)

Mutual recognition will not establish the kind of European-wide industrial standards needed to create the economies of scale that would be offered by Community-wide industrial standards. Mutual recognition and free movement create an internal market to the benefit mainly of traders; harmonisation adds a common market to the benefit of producers and consumers.

It will be many years, perhaps decades, before the European Standards authorities have completed the task of harmonising essential technical standards and therefore mutual recognition will remain important.

2.3 The New Approach Directives (NAD)

In May 1985, a resolution by the Council of Ministers was agreed on introducing a 'New Approach to Technical Harmonisation and Standards'. These 'New Approach Directives' (NAD) set out essential requirements (ER), written in general terms, which must be met before a product can be sold anywhere in the Union. European Standards add the technical detail to the ER and are one of the methods of gaining compliance with a directive. The directives also say how manufacturers are to show that products meet the ER, such as manufacturers declaration or third party certification. Products meeting the requirements can then affix the CE marking and be sold legally anywhere in the Union.

It was hoped that this change to the directives would increase the speed and flexibility of the Commission and contribute to the reduction of technical trade barriers. In some cases this has been so, but the importance and the nature of the construction industry has meant that the Commission has been slow in deciding on some issues.

If the New Approach Directives are successful, the different essential requirements of Member States will be replaced by harmonised Community essential requirements. The Commission believed that by harmonising standards it would stop dumping of low cost products and also low quality products that do not meet the standards (EC, 1991).

3.0 The Construction Products Directive

The CPD is one of the New Approach Directives. It was approved by the Council of Ministers in December 1988 and was to be implemented into the legislation of each Member Country by 27 June 1991. The CPD was implemented into UK law, through the European Communities Act of 1972, and was brought into force as a Statutory Instrument, No. 1620, on 27 December 1991 and is known as the Construction Products Regulations (CPR).

One of the aims of the CPD is to harmonise product standards and testing methods so that construction products can move freely within the EU, European Economic Area (EEA) and any other countries with trade agreements with the EU. Atkinson (1989) highlighted that the Commission hoped that in the long-term, the ER would help to harmonise the design and construction of building and civil engineering works, giving a common form of Building Regulations across Europe. The first step to achieve this is the introduction of harmonised standards and testing procedures for construction.

3.1 Main Differences to other Directives

The CPD is unlike any other NAD, and has several differences. A copy of the CPD is in Appendix A. The main difference, which makes the CPD distinct from any other products directive, is that the ER are not related solely to the product but when it is:

'permanently incorporated in the construction works (buildings and civil engineering)' (EC, 1989: Article 1)

The Directive also states that products 'can only be placed on the market if they are suitable for the intended use'. This being if the product has:

'such characteristics that the works in which they are to be incorporated, assembled, applied or installed, can, if properly designed and built, satisfy the essential requirements when and where such works are subject to regulations containing such documents'. (EC, 1989: Article 2)

The CPD covers a vast area, the 'construction works' referred to in the Directive cover both civil engineering and building works. This research will consider six products and then concentrate on one particular product and its importance to the construction of buildings.

Also within the CPD is an area for products that are defined as being 'minor' and these are not to be covered by the ER, Article 4. 5 states that:

'The Commission, in consultation with the committee referred to in Article 19, shall draw up, manage and revise periodically a list of products which play a minor part with respect to health and safety and in respect of which a declaration of compliance with the 'acknowledged rule of technology', issued by the manufacturer, will authorise such products to be placed on the market' (EC, 1989: Article 4.5).

The Committee referred to in Article 19, is the Standing Committee for Construction.

These products will not follow any of the procedures for gaining the CE marking and therefore do not have automatic entrance to the markets of other member states. This method has successfully been used in other NAD, such as the Simple Pressure Vessels Directive that permits low-pressure vessels to be manufactured in accordance with 'sound engineering practice' of a member state.

3.2 The Essential Requirements (ER)

Like all other NAD the ER for the CPD covers health and safety, energy and the environment. The following are the ER for the CPD and more information is detailed in Annexe 1 of the Directive in Appendix A.

1. Mechanical resistance and stability.
2. Safety in case of fire.
3. Hygiene, health and the environment.
4. Safety in use.
5. Protection from noise.
6. Energy, economy and heat retention.

The ER are expressed in general terms to speed up the process of adoption and they are then translated into specific requirements by harmonised European Standards (EN) or European Technical Approvals (ETA). Another difference with the CPD to other directives is that it has a set of Interpretative Documents (ID), which were required due to the vast cover of this Directive, to add substance and a link for those writing the standards.

3.3 The Interpretative Documents (ID)

Articles 3 and 12 of the Directive state that the Interpretative Documents shall 'give concrete form to the Essential Requirements' (EC, 1989). The principle objective of the ID is to 'establish the link between the Essential Requirements and the mandates which the Commission gives to European standardisation bodies to establish harmonised standards and to the European Organisation for Technical Approvals to establish Guidelines for European Technical Approvals' (EC, 1994).

The ID are described as not being 'cast in stone' but of an 'evolutive nature' and in time will be changed to keep abreast of future developments (EC, 1994). The ID will change as the nature of the construction product changes such as technological advancements. The ID may also need to be revised when the present differences in intended use of products reduces due to increased standardisation and also with the increased knowledge of other Member States differences, be they regulatory or climatic.

The Directive is not trying to create 'europroducts' and takes into account traditional differences in the construction industry of Member States. The general introduction to the ID clearly states that:

'As the purpose of the Directive is to eliminate obstacles to trade coming from existing legal, regulatory or administrative provisions, the technical specifications deriving from the Directive should take fully into account the justifiable technical traditions in Member States. This means that technical specifications should not hinder or prevent the use of construction products which enable works to conform to the essential requirements and which are in use in the Member States' (EC, 1994).

The key word in this Article is 'justified' as a country may feel that they are justified in refusing a CE marked product if they think it is not of a standard to ensure public health and safety. This point was raised in the interviews with the UK members of the Construction Standing Committee and the Germans were highlighted as feeling very strongly on this point (Borthwick, 1994a).

The Directive has also included levels or classes that are to be used where differences specified in Article 3(2) of the Directive are identified and justified in EC law. The differences specified are:

- Geographic
- Climatic conditions
- Ways of life and
- Levels of protection that may exist at national, regional or local levels.
(EC, 1989)

The inclusion of classes for the specified differences in Article 3(2) is a point of concern for some in industry as this could be a way for countries to introduce non-tariff barriers again (Borthwick, 1994b).

The Standing Committee for Construction was responsible for producing the ID and it took several years to complete the documents. This was due to each member state's representative wanting the ID to be as close as possible to their existing countries system and agreement had to be reached on what was deemed necessary to be included in the documents.

3.4 Attestation of Conformity

The means of proving compliance and that the product meets the ER is laid down in Article 13. This was another area that slowed down the implementation of the Directive and the problem was on agreeing the level of attestation. Third party certification will mean additional costs to manufacturers and this is the system that the Germans currently use, so they have been arguing for that (Borthwick, 1994a). In the UK, Quality Assurance is used, so the UK has argued for manufacturers declaration for the majority of products. Not all products would be manufacturers declaration as some products would have to be classified as high risk and have to be third party certification, for example fire doors and safety glass.

Until the attestation of conformity is decided, standards cannot be written and the CE marking cannot be affixed to products. Once agreement has been reached, the next stage is for the Commission to issue the mandates to the Standards body to write the standards.

The Directive allows three main ways of showing compliance,

1. Harmonised European Standards (EN)
2. European Technical Approvals (ETA)
3. National standards

With time, showing compliance through national standards will not be an option because national standards will be replaced with the new European standards. The methods of showing compliance are detailed later on in the chapter.

3.5 Construction Mandates

The first phase of standardisation mandates referred to products that fulfilled two conditions aimed at dealing with those products most affected by barriers as a priority.

The conditions were:

1. The product was subjected to technical barriers to trade.
2. The product met the essential requirements set out in Article 3 that influence the construction works when incorporated in a permanent manner. These works are subject to legislative, regulatory or administrative regulations of Member States covering such essential requirements. (Any other type of barrier to trade within Articles 30-36 of the Treaty must be directly eliminated by the Member State). (CEN, 1990)

The mandates are intended to provide harmonised European standards that are needed in order to make possible the ‘approximation’ of national regulations. This approximation is expected to be by adapting the national regulations to take full account of the mandated harmonised standards.

There are 33 mandates for construction products and these are identified in Appendix A.

3.6 CE Marking

Product Directives set a **minimum** standard that products must satisfy before they can be legally placed upon the market. Products that reach these standards can affix the CE marking and can then move freely throughout the European Union and those countries with Trade Agreements with the EU, without interference from Member States.

The CE marking is not a **Quality** mark. Producers are concerned that products that just meet the minimum requirements will come onto the UK market at a cheaper price than their products and that customers will perceive the CE marking as a form of quality mark (Borthwick, 1994b). At present UK Producers comply with British Standards that are regarded, in some cases, as requiring a higher level than the minimum of the proposed European standards and therefore may cost more than some other products. The issue will be if customers buy products on price or 'fit for purpose' that is to say that the product meets a certain level of performance rather than the minimum.

Producers are also concerned that in certain member states a quality mark, such as the British Standards Kite mark, may be specified to ensure a high standard (Borthwick, 1994b). Gaining a country's quality mark would be another form of barrier to entering a market, as testing in that country would be required. This situation has already occurred in Germany where a German Quality mark is required for structural steel components

Along with the CE marking the manufacturer must also provide the following information (EC, 1989; DETR, 2001b):

- Number of the Commission notified body
- Manufacturers details
- The last two digits of the year of affixing the CE marking
- The number of the CE certificate of conformity
- Characteristics of the product – the product standard number and product data not in the standard.

It is not mandatory to affix the CE marking in the UK under the Construction Products Regulation. Due to the different interpretation of the wording of the Construction Products Directive, the UK, Ireland and Portugal have not made the affixing of the marking mandatory. However it is mandatory to affix the CE marking in all other Member States and if a product is to be sold in that country it must affix the marking to prove compliance with the Directive.

It is likely that only the small manufacturer, whose market is local, will not affix the CE marking. A product may also comply with more than one directive and may have to affix the CE marking under that directive.

3.7 Enforcement

The enforcing body for this Directive is the Trading Standards Office. It is expected that Building Control Officers will be the 'eyes and ears' for the Trading Standards Officers, and make them aware of any products that do not meet the requirements. If prosecuted and found guilty of breach of the Regulations a maximum fine of £5000 can be imposed and/or a penalty of three months in prison can be ordered.

Although, at present, there is only one harmonised European Standard for cement, there have been prosecutions for products that do not comply with the Construction Product Regulations. The most highlighted case and the first prosecution was by North Yorkshire County Council (Chicken, 1993). It was against a supplier of plastic sheet material that claimed to be 'clearly safer glazing'. A suggested application was as a suspended ceiling. When tested the product was flammable and gave off toxic gases. This breached the Building Regulations of 1991 and the essential requirement, Safety in Case of Fire in schedule 1 of the Construction Products Regulations 1991. The supplier was fined £1000 and ordered to pay costs of £1311.

While the Directive is not fully operational, those in the industry need to be aware of the implications. Trading Standards Officers have found that brand or trade names are referred to rather than standards, causing contractors problems when specifying conformity to standards. Contractors also need to be aware if using 'older products', if they cannot prove where the product came from, for example the manufacturer, they are liable if that product does not conform.

3.8 Summary

There have been various publications on the CPD, ranging from the affect it will have on 'Quality Management', to articles from various parties in trade journals to the pro's and con's of the CPD. The general view from the manufacturers in the early 1990's was not positive. The larger manufacturers have become more involved in putting time and money into the standards process and the benefits or the disadvantages of not being

involved have been recognised. There was also a significant amount of media attention from government departments and trade associations to raise awareness of the Directive, but this has since become non-existent.

The impact of the Directive has lost emphasis and manufacturers are wondering about the benefits. The CPD was introduced in 1988 and over ten years later there is still only one full harmonised European Standard in place. It was implemented into UK law as the Construction Products Regulations and because there are virtually no standards or guidelines for affixing the CE marking, it is difficult to enforce. The Construction Products Regulation is a piece of legislation and although there are few standards, the Regulation must still be adhered to and the construction industry, contractors, specifiers as well as Producers need to be aware of the implications of the Regulations.

4.0 Methods of Compliance

4.1 Introduction

Standards regulate every aspect of the manufacturing process; materials, dimensions, performance, codes of practice, test methods and terminology. They also affect the packaging, handling and storage of the product once it is made, as well as the health and safety of the employees involved. This is why it is important that in the UK, the harmonisation of European Standards is taken seriously, and time, money and expertise are committed into the committees and working groups that are writing these new harmonised standards. If this is not done, UK Producers could find themselves having to comply with standards that could differ quite significantly to present British Standards. This could be very costly to UK industries. It could mean changing packaging or the complete manufacturing process.

4.2. The British Standards Institute

The benefits of harmonised standards is not a new idea. The first meeting of the Engineering Standards Committee was held on 26 April 1901 and was set up to harmonise the size of screws and metal girders. The resulting standards had an estimated saving of £1 million a year in steel production costs (BSI, 1994a).

The world's first national standards organisation was formed in 1903. It was voluntary, formed by industry and approved by the government. A British Standard Mark was introduced so buyers could clearly identify those products of a 'good' standard and was first registered as a trade mark for tramway rails in 1903. This later became the Kitemark.

At the start of the First World War, there were 64 published standards and 60 working committees. By 1918 this had increased to 300 committees and the workload continued to increase in the 1920s as standards were used around the world. In April 1929 the British Engineering Standards Association was granted a Royal Charter and its main objectives were defined:

'To set up standards of quality and dimensions, and prepare and promote the general adoption of British Standard specifications and alter or amend these as required' (BSI, 1994a).

In 1931 the Association became the British Standards Institution (BSI) and the workload was increased to incorporate not just the engineering sector.

The next important era for the BSI was during and after the Second World War. Work concentrated on 'war emergency standards'. Standards for materials used to build shelters and the reconstruction work after the war were developed and considered methods to reduce waste and make use of available raw materials. It was also the BSI's first move into Consumer Protection, with standards for furniture and clothing. Government policies were aimed at boosting the economy through promoting exports and British standards were revised to take into consideration international factors. In 1946 the International Organisation for Standardisation (ISO) was set up and it is now the largest and most important standards body with 90 members.

The growth in consumer goods and housing in the 1950's and 1960's led to an expansion in the BSI's workload in consumer protection and standards to improve construction techniques.

4.2.1 International Agreements

When an International Standard is published it must be introduced and/or replace the current British Standard. The same also happens for the new European Standards under the **Vienna Agreement** of 1991. This lays down guidelines on technical co-operation between the International Standards Organisation and the European Committee for Standardisation and these take into account the following areas:

- co-operation by correspondence
- co-operation by mutual representation at meetings.
- application of CEN/CENELEC internal regulations in the framework of the agreement.
- adoption of existing International Standards as European Standards.
- co-operation by transfer of work and parallel approval of standards (BSI, 1992)

Ian Dunstan (1990) of the BSI commented on the importance of international co-operation in standards writing:

'wherever possible the European work is based on international agreement. We don't want to generate what has been called the Fortress Europe mentality. We are not out to isolate Europe from the rest of the world.'

It is worth mentioning here how important it is to realise that in the future, with the expansion of the Union and the various trade agreements with the European Free Trade Association (EFTA), East European and Mediterranean countries that the European market is expanding to become the largest trading block in the world. This could mean that the European Standard could become recognised as the 'world standard'. Almost 80% of BSI's standard workload is now committed to the writing of European Standards (Dunstan, 1990).

The BSI (1994b) described itself as not writing or creating the Standards but as facilitating the making of them:

'It draws together the relevant expertise and translates that intellectual power into the standards.'

4.3 European Committee for Standardisation (CEN)

Comité Européene de Normalisation (CEN) started in 1961 and brings together the national standards bodies of the Union (15 at present) and EFTA (4). In 1975 it moved its headquarters to Brussels to link up with CENELEC, the European Committee for Electrotechnical Standardisation and together they are the Joint European Standards Institution. In this research we shall just be looking at the workings of CEN. The role of CEN in the producing of European Standards really expanded with the introduction of the New Approach Directives.

Anyone may put forward a proposal, but CEN has its own programme of work through 'mandates' from the European Commission that take priority. These mandates are to prepare European Standards that are required by the New Approach Directives. As soon as work is started on a European Standard, the 'Standstill Agreement' comes into action. This is legally binding on all members of CEN and states that no new or updated national standard can be published on the same subject if it should endanger the European work (CEN, 1992). These standards are adopted by weighted majority voting, so if a country votes against a new standard and the vote is carried that country must replace the national standard with the new European Standard. Each European Standard will have a formal review within a five-year period.

There are three main principle documents that CEN produce in the standardisation field and the BSRIA EuroCentre (1992) defined them as:

1. **A European Standard (EN)** - a set of technical provisions drawn up in collaboration and approval of the parties concerned in the various member countries of CEN. It is drawn up on the basis of consensus and adopted by the votes of a weighted majority. Adopted standards must be implemented in full as national standards and any standards that conflict with them must be withdrawn.
2. **A Harmonised Document (HD)** - drawn up and adopted in the same way as a European Standard but its application is more flexible so that the technical, historical or legal circumstances pertaining to each country can be taken into account.

3. **A European Prestandard (ENV)** - prepared as a prospective standard for provisional application in areas of technology in which there is a high level of innovation or where there is felt to be an urgent need for guidance, where the safety of persons and goods is involved. Once adopted an ENV is subjected to an experimental period of up to three years.

ISO Guide 2 defined a standard as:

'a document, established by consensus and approved by a recognised body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context' (CEN, 1990)

The construction standards have two categories:

Category A - Codes of Practice, also known as Design and Installation Standards, including the Eurocodes.

Category B - Standards concerning construction products specifications.

Category Bh (horizontal) - Standards on construction product test methods. It can be a test for a group of products or just a single product.

This research is only concerned with Category B, the standards and the harmonisation of testing methods.

Parker (1994) highlighted concerns that the BSI had over the quality of forthcoming European Standards and warned that they would refuse to honour legal obligations to replace existing British Standards with new European Standards if they felt that the European proposals 'did not meet the needs of the UK'.

4.4 Standardisation

Standardisation is flexible and its decision-making process is more transparent to the participating industry than using legislation. Standards are an example of democracy and self-regulation.

The Department of Trade and Industry (1991) described the broad aims of standardisation as to:

- (a) provide a means of communication amongst all interested parties.
- (b) promote economy in human effort, materials and energy in production and exchange of goods.
- (c) protect consumer interests through adequate and consistent quality of goods and services.
- (d) promote the quality of life: safety, health and the protection of the environment.
- (e) promote trade by the removal of barriers caused by differences in national practices.

Standardisation is defined by ISO as:

'The activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context' (CEN, 1990).

The main principles for this are:

- consensus: general agreement, which does not necessarily imply unanimity.
- voluntary: in its implementation and participation. A standard only becomes compulsory when legislation refers to it.
- consideration for and representation by all interested bodies.
- solidarity between the members and collective nature of the decisions.
- safeguarding of vital interests of the participants.

Community policy on technical harmonisation acknowledged that standardisation:

'is an important contribution to the free circulation of industrial products and furthermore, to the creation of a technical environment common to all enterprises, it contributes to industrial competitiveness both within the internal market and beyond its borders, especially in new technology' (CEN, 1992).

CEN (1990) reinforced this policy stating the importance of European Standardisation in facilitating the exchange of goods and services by removing technical barriers to trade and described European Standards as the creation of tools for the competitiveness of European Industry.

CEN's activities aimed at standardisation are in:

- (a) promoting the implementation of international standards prepared by ISO. As far as possible, any duplication of work is avoided.
- (b) harmonisation of national standards and technical documents.
- (c) preparation of European Standards and Harmonisation Documents where non exist,
- (d) creation and implementation of procedures for the mutual recognition of test results and certification systems
- (e) co-operation with the European Commission, the European Free Trade Association, economic, scientific, technical, European and international organisations.

4.5 The Agrément Process

The concept of an independent service for the technical assessment and acceptance of new materials and building methods was formed in France after the Second World War by the reconstruction ministry. In 1948 the service was transferred to the government-supported building research centre, the Centre Scientifique et Technique du Bâtiment. The assessment process takes its name from the French word Agrément which means consent or approval (Atkinson, 1991).

4.5.1 The British Board of Agrément (BBA)

The British construction industry started to take an interest in the French agrément system in the early 1960s and a government committee was set up to investigate the possibility of a similar UK system. The subsequent report identified the need to establish:

'a national and totally independent body for the assessment and testing of innovative construction products or those which were claimed to exceed the performance requirements of a relevant British Standard' (BBA, 1992).

The first British Agrément Board was set up in 1966 and worked with the Building Research Establishment (BRE) as its technical agent until 1969 when the two split. The Board was then directly responsible for the development of methods of testing and assessment, and any technical assessment for an Agrément Certificate needed by manufacturers.

Industry was slow to adopt Agrément Certificates and was confused over the role of the BSI and the Board. In 1982 the Board became known as the British Board of Agrément and in 1983 the BSI and BBA signed a memorandum of agreement, clearly defining their responsibilities and areas of common interests.

4.5.2 Agrément Process

Before a new product or process can be assessed, the BBA needs to establish the performance criteria and the means of demonstrating that these requirements are met. These methods of testing and assessment are innovative and have to be continually updated. Once they are established they are then published as the Methods of Assessment and Testing (MOATs). The product or system is assessed for all relevant performance factors, including safety, durability, installation and other essential requirements.

An Agrément Certificate is then drafted and circulated for comment to relevant experts and regulatory authorities. Any comments are then considered and incorporated, if necessary, into the finished Certificate.

The Agrément Certificate is defined by the BBA (1992) as giving:

'an independent opinion of the fitness for purpose of a product or system'.

Manufacturers awarded Agrément Certificates are subject to quality surveillance by the BBA during the period of validity of the Certificate. The Certificate is reviewed every three years to ensure continuance of the required standards.

4.5.3 European Technical Approvals (ETA)

European Technical Approvals are for products that are innovative and for which harmonised standards are not appropriate. Alan Thomas (1993) of the BBA described them as a 'kind of pan-European Agrément Certificate'.

The Construction Products Directive defined an ETA as:

'favourable technical assessments of fitness for use of a product for an intended use, based on fulfilment of the essential requirements for building works for which the product is used' (EC, 1989).

Members of the European Organisation for Technical Approvals (EOTA) draw up the ETA based on European Technical Guidelines after a programme of testing (MOATs). These members are the technical approval bodies designated by Member States under Article 10 of the Directive and the BBA is the UK member.

ETA's can only be given for products for which a Technical Guide has been drawn up after a mandate by the Commission and approved by it, or for which the Commission has agreed that an ETA can be drawn up without a Technical Guide.

4.6 Summary

The process of standardisation has been slowed down due to the complexities of the construction material market across a wide range of geographical and culturally diverse Member States. The majority of standards committees have been in discussion since the early 1990s, for example CEN/TC125 Masonry has yet to reach approval status for a method of testing the determination of initial shear strength and discussions started in 1993. To reach agreement on an issue requires majority voting and there must be 71% in favour. Progress has also been slow due to the time it has taken to produce the Interpretative Documents, almost five years and the Commission has also been slow in issuing mandates. In some cases when the mandates have been issued they have 'surprise' areas that the standards committees were not expecting and discussions and negotiations must start again to reach consensus. This was the case for the masonry standard and it is not expected to be ratified for at least another one to two years.

The problems have not been so severe for ETA as they are dealing with innovative products but agreement still has to be reached over the testing methods most suitable to be used. Once again lengthy discussions and negotiations can take place.

The British Standards and Agrément Certificates already in use will not be outlawed with the introduction of ETA and European Standards. There will be a lengthy lead-in period and the European and UK approval and certification schemes will still have validity in this country.

5.0 Conclusions

The New Approach Directives were introduced to speed up the process of harmonising technical standards, yet the Construction Products Directive has proved to be the exception. It was introduced into legislation in December 1988 and over ten years later there is still only one European harmonised standard and that was only published in April 2001.

The problems that have been encountered highlight the importance to national economies of the construction industry and therefore the materials industry. European Standards should open the industry up to more competition and put an end to this form of technical barrier to trade, so often used in the past to stop products entering markets.

Large manufacturers realise the importance of this Directive and its possible benefits of increased market share and have invested a lot of time and money into the standards process. They are also very aware of the possible implications to their current production processes if the new European Standards are vastly different to current British Standards and this is another reason for their involvement in technical committees. Smaller manufacturers rely on the trade associations and government departments to keep them informed of the implications of new legislation and to update them on the standards position.

The British Standards Institute has always had an international approach, helping to promote the acceptability of the UK exports. Now the BSI's role in Europe becomes

even more crucial if UK companies are to compete successfully within the Single European Market. It is also hoped that within time the new European Standards may become the International Standards of the future opening up further market places for European, and hopefully UK Producers.

The Construction Products Directive has been in place in the UK since 1991 as the Construction Products Regulations but until there are more European product standards it is difficult for anyone, especially the Producers to see any impact. This research is aiming to assess this situation and the following chapters will examine the case for certain UK product manufacturers.

CHAPTER FOUR

STRATEGY

CONCEPTS AND DEVELOPMENTS

1.0 Introduction

This chapter aims to introduce the final subject area involved within the research hypothesis. There is a vast amount of literature on strategic management and this chapter is not aimed at analysing its complete development but in outlining the concept of strategy and its progress. This chapter is linked with the next chapter that identifies the strategic decisions that firms must consider with regards to the market they are currently in and possible new markets.

2.0 The Concept of Strategy and its Development

2.1 Introduction

It can be said that strategy lays down how a firm intends to achieve its mission with this being the 'raison d'être' of any business. A well-conceived mission statement defines the fundamental, unique purpose of a business that sets it apart from other similar firms and identifies the scope of the businesses operations in terms of products offered and markets served.

Richards (1987), Thompson (1993) and Ketelhöln (1993) all stated that a mission has specific objectives linked to particular time-scales that guide strategic decision-making. Richards and Ketelhöln also defined the difference between objectives and goals, with goals being open statements with no quantification or time criteria, the firm's vision.

2.2 Concept of Strategy

Strategy first became a major issue within the business community in the 1950s as a response to changes in their operating environments. The theory of strategy has rapidly developed since then and there are four recognised approaches to strategy.

2.2.1 The Classical Approach

This approach emerged in the 1960s and identified that strategy is best made through rational analysis and that profitability is the supreme goal of any business. The key

features of the Classical approach are the attachment to rational analysis, the separation of conception from execution and the commitment to profit maximisation.

Alfred Sloan, president of General Motors, (1963) defined his success as being able to strategically place the firm in those markets in which maximum profits could be earned. Sloan's work influenced such theorists as Chandler (1962), Ansoff (1965) and Drucker (1973).

Chandler (1962) defined strategy as being the basic long-term goals and objectives of an enterprise and he also identified that to meet these goals certain courses of action must be adopted and the necessary resources allocated. Ansoff (1965) described strategy simply as a set of decision-making rules for guidance of organisational behaviour. The research is primarily concerned with the firm's business strategy which is the development of the firm's relationship with its external environment; what products and technology the firm will develop; where and to whom the products are to be sold and how the firm will gain advantage over its competitors (Male and Stocks, 1991; Ansoff and McDonnell, 1990).

The Classical approach has been identified as having links with both military practice and academic economics (Bracker, 1980; Hoskin, 1990). Mintzberg (1990) identified the basic principles of the Classical approach as being that strategy formation should be a controlled conscious process of thought and that responsibility for control and consciousness must rest with the chief executive officer. Implementation is a distinct phase in the strategy process and follows the earlier phase of explicit and conscious formulation. These premises reflect both the individualism of economics and the military notion of the solitary general at the top of the chain of command.

2.2.2 Evolutionary Perspectives

The Evolutionary approach placed less emphasis on top management planning and acting rationally and more emphasis on the markets to secure profit maximisation. Evolutionary theorists argued that it is the actual strategy that is important and not the formulation and implementation of the strategy. The strategy must be competitive or it will not survive in the modern market place. Bruce Henderson, founder of the Boston Consulting Group,

(1989) stated that competition is not a matter of detached calculation but a constant struggle for survival in an over-populated, dense and steamy jungle. Milton Friedman (1952) argued that as long as the markets are competitive it does not matter if managers do not rationally profit-maximise, as the markets will dictate the profit-maximising position and survival of the firm in the long run. However Penrose (1952) stated that some large firms dominate the markets that are supposed to discipline them under the evolutionary principles, leading to oligopolistic powers to counter competitive pressures.

Evolutionists argued for environmental fit and this developed in the use of differentiation strategies. Henderson (1989) used the biological principle of competitive exclusion as a comparison to business survival. Competitive exclusion was identified in 1934 by the Russian biologist Gause who found that when two small organisms of the same genus but different species are put in a jar with a limited supply of food, they survive; however, if the two organisms were from the same species, with exactly the same amount of food they would die. Coexistence is impossible if organisms make their living in an identical way, the same can be said of identical firms in a competitive market. Environmental fit involves developing strategies that keep the firm competitive in varying environments by offering something that your competitors do not.

Hannan and Freeman (1988) and Williamson (1991) stated that the efficiency of the market place is the best strategy. The introduction of new firms into the marketplace means that it remains competitive and those firms that cannot compete should not be subsidised to remain in the market. As the marketplace can change quite rapidly, Evolutionary theorists stated that long-term strategies could be counter productive and costly. Short-term strategies are more flexible to change but in a competitive market competitors are quick to imitate and therefore the benefits are only short-term. Aldrich (1979) argued that environmental fit is more likely to be the result of chance and good fortune, even error, than the outcome of deliberate strategic choice.

2.2.3 Processual Approaches

The Processual theorists generally share the Evolutionary view on rational strategy making, but do not share the principle that the markets determine the profit-maximising outcomes.

The Processual approach was developed by the American Carnegie School, which identified that strategy decisions are affected by cognitive limits on rational action and the micro-politics of organisations. Cyert and March (1963) concentrated on human behaviour, emphasising the limits of human cognition. Argyris (1977) and Male and Stocks (1991) also identified the human involvement in the strategic decision making process. Cyert and March (1963) identified that strategy is the product of political compromise and not profit-maximising calculations as organisational members bargain between each other to arrive at a set of joint goals that are more or less acceptable to everyone.

Cyert and March (1956) argued that firms could get away with slow adjustments because markets are relatively tolerant to underperformance. This view limits the need for strategic flexibility and reduces expectations of success. Strategy-makers follow established routines and stop searching for the optimal solution. Weick (1990) stated that some managers needed to have a routine to follow, even if it was wrong, gaining confidence and the sense of purpose to act. The strategies themselves then become routinised rather than chosen.

This is the reverse of the Classical approach of strategy formulation then implementation. March (1976) identified it as strategy discovered in action. Mintzberg (1978) referred to strategy as a craft, material that is constantly worked and nourished to the end result. Donaldson and Lorsch (1983) concluded that major shifts in strategy do not occur suddenly or rapidly, the process of strategic change is basically an incremental one and each step is relatively small. Quinn (1980) termed this gradual adaptive approach to strategy as logical incrementalism and believed that serious lasting mistakes can be avoided by adopting the incremental approach. The logical incrementalist is committed to a process of experimentation and learning. Mintzberg and Waters suggested (1985) that strategies are often emergent with their coherence accruing through action with the underlying strategic logic coming after the event.

Processualists who emphasise the stickiness of external markets reinforce this incremental approach to strategy. Grant (1991) stated that the origin of a firm's competitive advantage lies in what is unique and embedded in its resources, its core,

distinctive competences. Hamel (1991) stated that strategy involves building on core competences. The sources of sustainable superior performance therefore lie internally in the capacity to exploit and renew distinctive resources rather than externally, in simply positioning the firm in the right markets.

2.2.4 Systemic Perspectives

Systemic theorists believed like the Classicists that organisations have the capacity to plan forward and to act effectively within their environments, but they believed that the rationales underlying strategy are peculiar to particular sociological contexts. They proposed that firms differ according to the social and economic systems in which they are embedded.

The norms that guide strategy derive not so much from the cognitive bounds of the human psyche as from the cultural rules of the local society. This is an important point when developing a strategy for international firms. Whately (1991) suggested that different kinds of enterprise structures become feasible and successful in particular social contexts, especially where cultures are homogeneous and share strong boundaries with nation states. An example of this situation is the Benelux countries. Ketelhöln (1993) stated that strategy must be adaptable to different cultures and industries. Rather than rising above their origins, companies are influenced by the industrial cultures, class structures, politics and professional biases of their home nations, this is something that will have to be dealt with if European companies are to be successful in the SEM.

Systemic approaches emphasise how strategic goals and processes reflect the social systems in which strategy is being made. Whittington (1993) highlighted that variations in market, class, state and cultural systems make a difference to corporate strategy. Firms in one particular society will not be the same as another in the same society as societies are too complex and people too individualistic for this to happen.

2.2.4.1 Summary of the Four Approaches

The Classical approach to strategy emphasises the capabilities of the managers to adopt profit-maximising strategies through rational long-term planning. The Processualists also emphasise the role of the manager in recognising and accommodating real-world

imperfections and maximising performance by considering the implementation of strategy and cultivating flexibility for incremental adaptation. However the Evolutionary principle matches the strategy to the environment by trying several short-term strategies and adopting the one that works best. Changes in strategy would take place due to the environment and not because of the manager. The systemic perspectives also considers the environment and states that strategy must be sociologically sensitive and challenges the universality of any single model of strategy.

2.3 Summary

There are increasingly many more complex variants as markets become more global and therefore more competitive. Competitive strategy will have to adopt a part of all the four approaches:

- It will have the objective of profit-maximisation;
- Incremental adaptation of strategy will allow more consideration of environment changes;
- Managers will have to consider the short-term view due to changes that could occur quite rapidly in their market;
- The market will increasingly become more global and the strategy must reflect this, considering more variants.

Simply, strategy is the decision making process of how an organisation is going to meet its objectives working within certain constraints, internally and externally with the end aim of profit maximisation.

3.0 Terminology of Strategy

The following are descriptions that are aimed at understanding the process that firms go through to develop and put in place their strategy to remain competitive in the market place.

3.1 Strategy Formulation

Mintzberg (1976) defined strategy as a pattern in a stream of decisions and because of this, strategy formulation is typically not a regular, continuous process. Mintzberg (1978) also introduced the term formation rather than formulation. He believed that formulation sounded very rational, whereas some strategies emerge from a pattern of events.

Wheelan and Hunger (1992) described strategy formulation as the development of long-range plans for the effective management of environmental opportunities and threats, in light of corporate strengths and weaknesses. It includes defining the corporate mission, specifying achievable objectives, developing strategies and setting policy guidelines. Porter (1991a) believed that the essence of strategy formulation is coping with competition.

3.2 Strategic Decisions

Strategic decisions concern the scope of an organisation's activities and are often not 'taken' but 'happen'. Cohen *et al* (1972) suggested that moments of decision occur when four independent streams happen to coincide: problems, solutions, participants and choice opportunities. The Processualists approach to strategy, suggests that as various situations regularly arise, the more established routines are relied on and the fewer real decisions are actually made (Nelson and Winter 1982). Mintzberg and Waters (1990) also raised the point that we conventionally assume that decisions represent commitments to future actions. In practice, decisions are often followed by no actions, or even by quite different actions from those intended.

3.3 Strategic Change

When a business decides to change its strategy, it is either because the original strategy is not working or the mission of the business has changed and therefore the strategy no longer fits the new mission.

Pettigrew (1990) recommended that instead of strategic choice, with its connotations of deliberate decision, strategic change is used. Change involves considering processes over time and not just strategic decisions at particular moments. It also implies that

strategy formation involves more than the analytical procedures of decision, but also the uncertainty of implementation. Thompson (1993) believed that change could be gradual or more dramatic, even revolutionary.

3.3.1 Strategic Change within the Organisation and its Management

The challenge of strategic management is in the involvement of managers in guiding the future direction of the organisation. Managers need to be strategically aware within their organisation and also to be aware of the strategies of their competitors. They also need to be aware of the need for and suitability of, opportunities for change. Pettigrew and Whipp (1991) believed that the generic capacity to handle strategic change is now the critical source of competitive advantage and that a truly sustainable advantage comes from the internal ability to adapt and learn. In a fast moving environment, more specific sources of advantage, such as a particular technology or niche market, are liable to be quickly superseded.

Corporations are slow to adopt radical strategy changes because top managers are wary of change and do not want to take a risk for fear of losing their positions. Whittington (1993) identified that harsh strategies of rationalisation and refocusing were imposed during the recession in the early 1980s, only after attempts at more moderate strategies had failed. Pettigrew (1985) and Johnson (1987) highlighted that both change and resistance to change can be deliberately political as well as cognitively based.

The Evolutionists believed that the 'agency approach' which is the threat of market failure, is generally enough to motivate change. Many companies apply the agency approach to change internally by motivating workers by threatening 'change or leave'. The Processual theorists take a less harsh view on strategic change and believe that the main problem with change is getting everyone to recognise the need for change. De Geus, head of planning at Royal Dutch Shell, (1988) stated that corporate planning is primarily about flexibility, the changing of minds; the ability to learn faster than your competitors may be the only sustainable competitive advantage available in the fast changing global market. Strategic learning is not just a matter for top management and Senge (1990) identified that individualism is a thing of the past and everybody must learn

and adapt. The danger of the purely learning approach to change is that it can lead to underestimating the competition.

Pettigrew (1985) and Mintzberg and Waters (1985) identified strategic change as a slow process with only rare moments of achievements. Mintzberg and Waters (1994) stated that organisations are characterised more by continuities than changes, the policy details may change, but the core strategy remains basically intact. The top management's task is to manage the continuity rather than implementing strategic change.

Firms who are leading the market can so easily become also-ran if they fail to adopt to change or fail to create the change. Robertson (1982) stated that living with uncertainty is likely to be management's biggest challenge and this is very true in the present economic climate, especially for the international organisations.

3.4 Strategy Implementation

Early strategy theory concentrated on sequential models of corporate planning and not so much on implementation. Implementation is concerned with putting strategy into practice. Giles (1991) described this as the execution of tactics both internally and externally so that the organisation moves in the desired strategic direction.

3.4.1 The Hierarchy of Strategy

Strategy implementation, and how successful it is, depends on the people that are carrying out the strategic plan and what and how they do it. Giles (1991) stated that strategy must have ownership by the whole organisation from the top to the bottom and without this ownership it can lead to failure in implementation. The Processual view is that organisational structures in practice fail to fit strategies, but strategies can actually be shaped by them.

There are several levels of implementation within an organisation, each with their own perspectives on what the strategy is. Three main levels are identified: (Bowman and Asch, 1987; Male and Stocks, 1991; Giles, 1991; Wheelen and Hunger, 1992).

1. Corporate strategy is concerned with the type of businesses the firm, as a whole, should be in. It looks at the overall picture, the portfolio analysis.

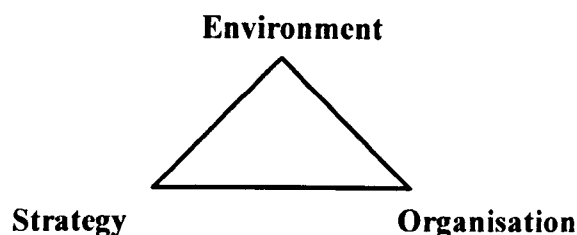
2. Business strategy is concerned with how an operating unit within the corporate whole can compete in a particular market, with Strategic Business Units (SBUs) created at the corporate level to link the two areas together.
3. Operating level or functional strategy is concerned with how the various functions - finance, marketing, operations, research and development, etc.- contribute to both business and corporate strategy. The main focus at this level is on resource productivity

Hambrick and Cannella (1989) and Prasad *et al* (1989) stated that without successful implementation, a strategy is of no use.

3.5 Strategic Fit

When acquiring new firms or developing new products, a corporation looks for strategic fit, the likelihood that new activities will mesh with present ones in such a way that the corporation's overall effectiveness and efficiency will be increased. The Classic approach of Chandler (1962) identified that organisations need to concentrate on the fit between the environment, strategy and structure.

Figure 4: Three Points of Strategic Fit



Chandler (1962) examined the relationship between strategy development and organisational change and concluded that for long-term success, organisational structure should follow strategy. A fit must also be developed along the environment - organisation axis and this will depend on the nature of the organisation. Bureaucratic mechanistic structures tend to work well in stable environments while flexible organic structures tend to be more successful in periods of rapid change or turbulence. Ansoff and McDonnell (1991) identified that to obtain a fit between environment and strategy;

managers must understand the nature of the environment context and match their competitive distinctive competencies to the dynamics of that context.

Hall and Saias (1980) inverted Chandler's dictum to assert that strategy follows structure. The multidivisional structure biases firms towards conglomerate strategies because they deny top management access to the actual businesses to see if there are any opportunities for organic expansion. Mintzberg (1990) concluded that the relationship between strategy and structure is inextricably reciprocal: 'structure follows strategy as the left foot follows the right'.

3.6 Competitive Strategies

It has been identified in this chapter already that firms are competing in ever more competitive markets and therefore must have strategies that are flexible to adapt to changes over the short term. During the 1980's, new strategic patterns emerged on the international business scene and were partly due to changes in competition rules and also significant changes in the economic, political and social situation in individual countries and regions.

All firms are striving to be competitive, to be the market leader or just to survive in the market. Porter (1980a) described competitive strategy as relating the firm to its environment, which can involve both social and economic forces. Porter also identified that the industry the firm operates within is the key to competitive strategy and this is discussed in more detail in the next chapter. Male and Stocks (1991) described competitive strategies as providing the firm with an advantage over its competitors.

Porter (1994) also identified that the main aim of competitive strategy is to create and/or enhance a sustainable competitive advantage within the business.

3.6.1 Competitive Advantage

Competitive advantage can be simply described as having the edge over your competitors and lies in the firm's ability to:

- develop new products/services more quickly than the competition

- put them into production quickly
- produce them reliably, efficiently and with quality.

Researchers in the 1980's concentrated on the specifics of the firm that gained competitive advantage, Porter (1980a, 1985) first concentrated on the industry implications, and Rumelt (1984) considered the resource implications. Hamel and Prahalad (1988) identified global brand dominance as a distinct competitive advantage in present markets. Porter (1990) introduced an international approach to competitive advantage by considering industries in different nations. This has been taken further by considering location as an important factor in a firm's competitive advantage, especially in the changing international markets of present (Porter and Sölvell, 1998). Male and Stocks (1991) considered competitive advantage within the construction industry from a contractors point and identified that it involves both firm specific advantages and locational advantages, both in domestic and international markets.

3.7 Summary

Strategy is concerned with internal and external factors of how a business should position itself and compete successfully within a marketplace. This involves strategy formulation, considering its strategic fit and then implementing the strategy and making any changes when needed to remain competitive.

4.0 Strategic Management

Strategic management involves two approaches; the market orientated approach and the process approach. The market-orientated approach means the organisation should address the question 'what business are we in?' and seek to satisfy the needs of this market. The process approach deals with how strategic decisions are made, how changes arise and the values that are fundamental to the most successful companies. While strategic management can incorporate major changes of direction for the whole business, i.e. diversification and growth overseas, it also involves smaller changes in strategies for individual products and services and in particular functions like marketing and operations.

4.1 Definitions

Wheelen and Hunger (1992) and Thompson (1993) identified strategy as a master plan of how the firm will achieve its objectives within a time period. Ketelhöln (1993) stated that this plan is the strategic management process. Policies are evolved from the strategy and these guide its formulation and implementation. Tichy (1983) and Bowman and Asch (1987) identified the process of change within strategic management and stated that it should be future orientated and concentrate on how the company manages change in a dynamic environment.

4.2 The Development in Strategic Management Theory

The first researchers into strategic management adopted examples from the military, Barnard (1938), Selznick (1959) and Chandler (1962). The shift was from a business policy approach of looking inward to a higher level of business policy, strategic management looking at the external issues as well.

Ansoff (1965) and Andrews (1980) developed concepts in corporate planning that have been applied into modern day research. Bartlett and Ghoshal (1991) stated that Andrews' greatest contribution was to articulate a concept of corporate strategy that was unusually broad and inclusive and that the later work of Porter (1980a) significantly enriched the environmental analysis dimensions of the Andrews model. These models will be identified in more detail in the next chapter and analysed to consider the model that is best suited to apply in the case study.

Strategic management research developed further to look more within the firm as well as on the external industrial analysis. Bartlett and Ghoshal (1991) identified that competitive advantage is no longer guaranteed by technology and location due to the changes in the global market and that a firm's resources are seen as the best way to gain this competitive advantage. Andrew (1980) defined resource management as the marshalling of the internal resources to develop distinctive competences. Research is now concentrating on this issue. Cool and Schendel (1988) and Rumelt (1991) identified that the focus should be on understanding how managers assemble unique portfolios of resources and develop distinctive competencies and capabilities as these provide much stronger predictors of performance than industry characteristics. Prahalad and Doz

(1987) also identified that an internal view of organisational processes and the factors, like quality of management, culture and history that shape these processes, should be used to analyse the strategy-making process of a firm.

4.3 Summary

Strategic management involved implementing the strategic decisions of the organisation and this must be carried out by considering external and internal factors. The external factors ensure that the firm is remaining competitive in its market and the internal factors are ensuring that the firm is working to its maximum potential. The process involves making the strategic decisions based on a review of the firms' current position, the formulation and implementation of these decisions into actions and then evaluating and controlling the actions. Evaluation and control are important to ensure that the strategies are relevant to the market environment. UK construction product manufacturers will have failed in their strategic management if they have not adopted strategies to take into account the single internal market.

5.0 Conclusions

This chapter has aimed to identify some of the developments and concepts of strategy and strategic management. It is important to remember that this is not meant to be an exhaustive literature review into strategic management as this is not the aim of the research. The areas that have been covered are necessary to understand market strategy that will be identified in the next chapter and how it is applied by the UK brick industry through the analysis of the case study interviews.

All companies have a strategy that has a set of objectives to be achieved within a time scale with the main objective to be profitable. To be profitable the company must be:

- strategically aware of where they are and of what lies ahead
- strategically aware of what their competitors are doing;
- able to understand their internal and external environmental variables
- able to achieve or maintain competitive advantage.

Organisations, their strategies, their structures and the management of them, are becoming ever more complex and will remain so. This is due to the increasing turbulence and propensity to change in the business environment and the increase in multi-product and multi-national organisations. The important point is change, the firm being able to adapt to change, their strategy should be able to cope with this without meaning too dramatic an upheaval. The SEM is a significant change in the business environment and if companies have not developed their strategy for this change, they will lose out in the market and eventually become uncompetitive and disappear.

The next chapter discusses the markets, local and global and identifies the strategic options that are open to firms. As stated in this chapter, firms must adapt their strategies to changes in their environment, the introduction of harmonised technical standards should lead to more market competition at home and open up new markets to firms. This is an important environmental change for firms that they should reflect in their strategies and the following chapter investigates methods of analysing the market when considering market entry and the implications on strategy in the international market.

CHAPTER FIVE

STRATEGY

ANALYSING EXISTING AND NEW MARKETS FOR POSSIBLE ENTRY

1.0 Introduction

The previous chapter has identified the importance of having a competitive strategy that is flexible to adapt to market changes. As the business environment is changing so rapidly, to remain competitive firms have to consider the markets they operate within. More firms, depending on their size, are looking at markets in Europe and/or globally. There are different strategies that a firm could implement but this will depend on certain market conditions. This chapter will investigate the different market conditions that UK construction manufacturers are now having to consider and the analysis tools that can be applied to assess a firm's market / product situation. The analysis models to be applied in the case study of the UK brick manufacturers will also be identified.

2.0 Implications of the Single European Market

Sölvell and Zander (1991) described the EU market as being only one piece in a global puzzle. The European Union, while offering potentially the largest domestic market in the free world, will be part of the global marketplace. A company will need to be integrated and globally orientated if it is to develop markets and utilise technologies in each of the global 'triad' - North America, the European Union and Japan. The synergies and advantages created by the SEM should make European firms more competitive and therefore the global market more attainable.

There is no question that all firms operating in the European Union have to face up to major changes in their operating environments. Curzon (1974) stated that harmonisation policies attempt to equalise conditions of competition and production throughout an area of integration, such as the SEM, irrespective of whether or not regional disparities might warrant differential policies. Coordination policies are different in that they seek to adapt centrally determined measures to the various needs of different regions, according to their needs and capacities. Daser and Hylton (1992) stated that companies would respond to European integration by reviewing their own objectives and strategies. The SEM provides easier access to goods and people, both as consumers and workers and as the obstacles to free movement are removed, companies will feel more encouraged to make a complete commitment to developing pan-European businesses. The most radical responses are taking place in industries where intra-EC

trade is limited and the number of producers is quite large. In national and fragmented sectors, like construction materials, significant international restructuring is taking place via mergers and acquisitions as identified in chapter two. The strategic reasoning behind this method of market entry will be discussed in this chapter.

Young *et al* (1989) highlighted that although both large and small enterprises are affected, the smaller firms who mainly supply only local or national markets, will be faced with greater competition and will thus be forced to re-think their strategies. Those companies already established in the SEM can improve their position by expanding their cross-border trade from their existing base and those with foreign direct investment in European countries should be able to centralise and rationalise their activities to exploit comparative advantage and/or economies of scale.

Goldin and Van Der Mensbrugge (1992) stated that the potential economic growth benefits of trade liberalisation by the complete removal of global trade barriers would deliver, within a ten-year period, annual economic gains of \$475bn. These growth benefits of trade liberalisation would accrue to both rich and poor nations, but only with the removal of all barriers and this is a situation that is a long way from happening.

3.0 Market Analysis Tools

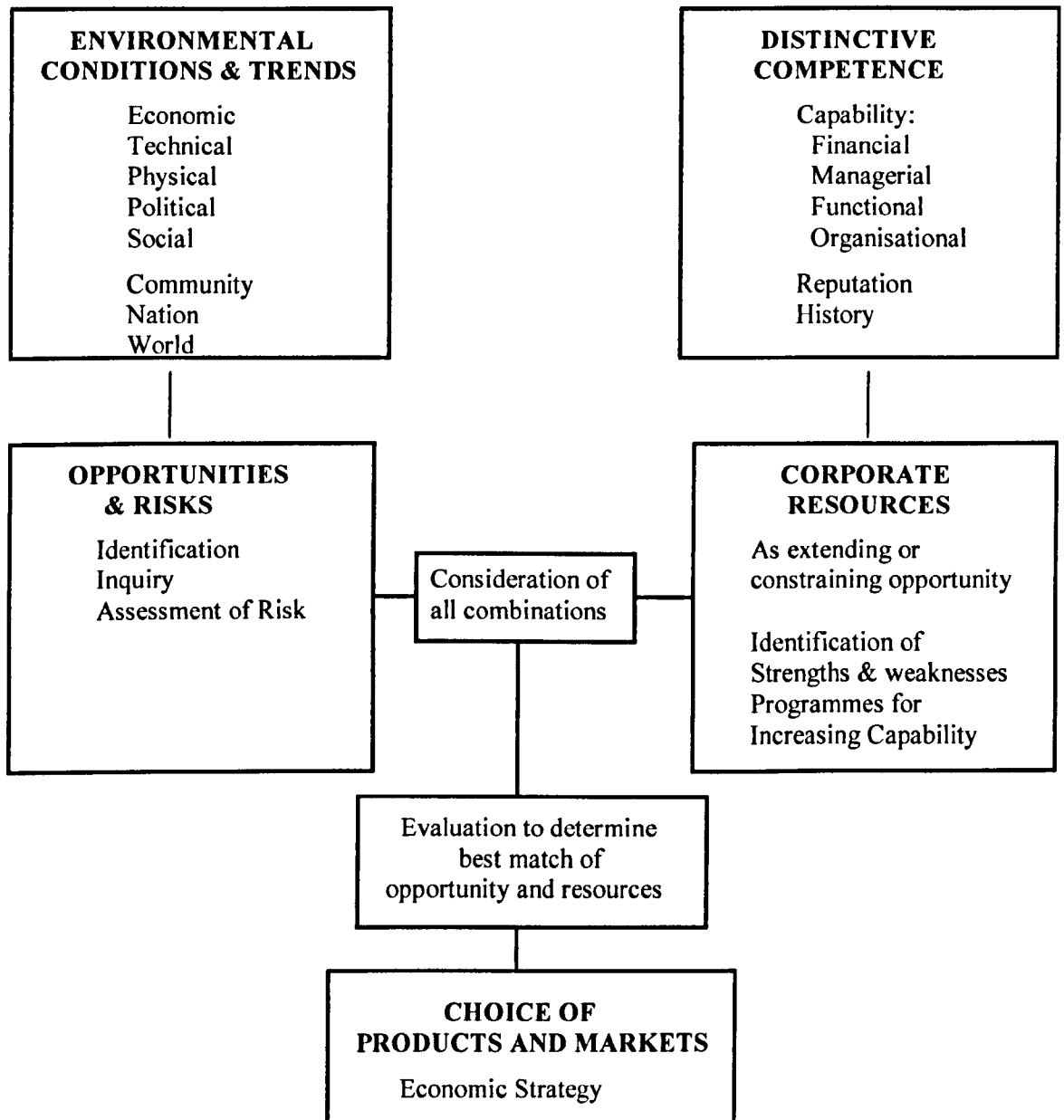
3.1 Introduction

When a firm is reviewing its strategy it must consider its existing and/or proposed market and its existing and/or proposed products for these markets. There are several models that have been developed to analysis both the firm, its products and markets or industries. This research is concentrating on industry analysis rather than product analysis and therefore has not discussed such analysis tools as The Boston Consulting Group Portfolio Matrix and the GE-McKinsey Screen. The following models have been identified as having relevance to this research and for their possible application to the case study analysis.

3.2 Andrews Schematic Development of Economic Strategy

Andrews (1980) identified that for a firm to develop an economic strategy it must consider not only its environmental conditions but also the organisations capability to implement the strategy. The following model defined the areas that must be considered in assessing the external influences and the internal competencies.

Figure 5: Andrews Analysis Model for Economic Strategy



Source: Andrews, K. R., 1980, The Concept of Corporate Strategy.

Andrews (1980) stated that the economic strategy would be determined by matching opportunity and competences. This model was one of the first to be used in the 1970s to analysis all determinants in strategy and has been adapted and revised since then.

3.3 SWOT Analysis

SWOT analysis is a corporate planning technique that was developed in the 1950's at the GE Management Development Institute, New York. A classical approach, it uses rational decision-taking and retains profit potential as the underlying criterion for the formulation of an organisations strategy. This analysis tool can also be known as the TOWS matrix (Wehrich, 1982). The Strengths and Weaknesses are considering internal issues and the Opportunities and Threats are considering external environmental issues. Wehrich (1999) identified that by using the SWOT matrix four distinct strategies can be developed, these being:

- S-O or maxi-maxi, exploit opportunities by using the strengths
- S-T or maxi-mini, maximising strengths by minimising the threats
- W-O or mini-maxi, attempts to convert the weaknesses into opportunities
- W-T or mini-mini, aims to minimise both internal weaknesses and external threats.

A SWOT analysis is a useful tool but it can be influenced by human cognitive behaviour. Stevenson (1976) and Jackson and Dutton (1988) identified that the position in the organisational hierarchy influences the analysis, people being more sensitive about threats. Schneider and De Meyer (1991) found that national culture could also make a difference to how managers use SWOT analysis.

3.4 Ansoff's Product-Market Growth Strategies

Ansoff (1965) developed a matrix that considered four growth strategies based on existing products and/or markets or moving into new markets and/or products.

Market penetration indicates a growth direction through the increase of market share for the present product-markets. In market development new markets are sought for the firms existing products. For both of these strategies, the firm must have a very strong

marketing capability to be successful. Product development creates new products to replace existing products and this requires a commitment to product research and technology.

Figure 6: Ansoff's Product/Market Matrix

	Present Products	New Products
Present Markets	Market Penetration	Product Development
New Markets	Market Development	Diversification

Source: Ansoff, 1965, Corporate Strategy.

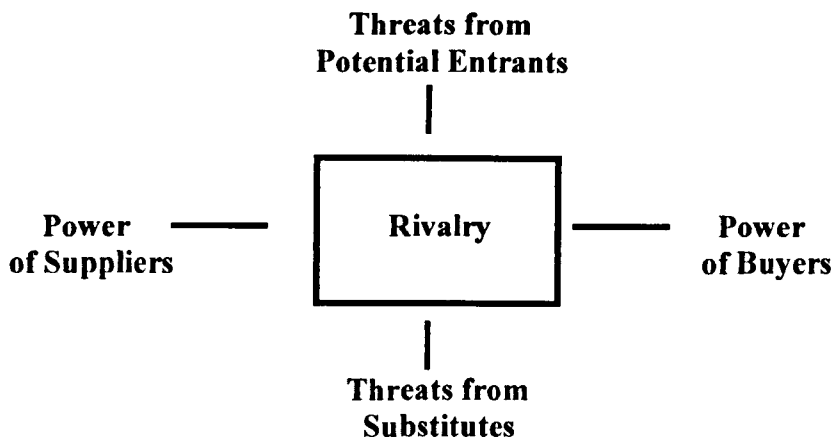
Diversification is distinctive in the fact that both products and markets are new to the firm. This is probably the most 'risky' of these four strategies and needs to have involved a thorough analysis of the proposed new industry and the capabilities of the new business to match the existing capabilities of the firm. Diversification strategies will be discussed later in more detail.

Ansoff (1965) identified that this matrix could be used within an existing industry and also across industry boundaries, for example when considering diversification into a new area.

3.5 Competitive Analysis – The Porter Five Forces Model

Porter's Five Forces Model is designed to consider the competition in an industry. It analyses industry factors that are the basis of competitive advantage. Porter (1980a) stated that the rationale behind this model is that industry profitability is not determined by what the product looks like or its level of technology, but the structure of the industry.

Figure 7: The Porter Five Forces Model



Adapted from Porter, M. E., 1998, *Competitive Strategy: Techniques for Analysing Industries and Competitors*, 2nd Ed.

If all five forces were strong, the industry profitability would be expected to be low. Weak forces permit higher prices and above-average industry profitability. Firms can influence the five forces through the strategies they pursue. Porter (1980a) identified that there are only two routes to superior performance, either becoming the lowest-cost producer in the industry, or differentiating the product/service in ways that are valued by the buyer to the extent that they will pay a premium price to get these benefits. These can be applied to a broad market, or to a narrow, focused market.

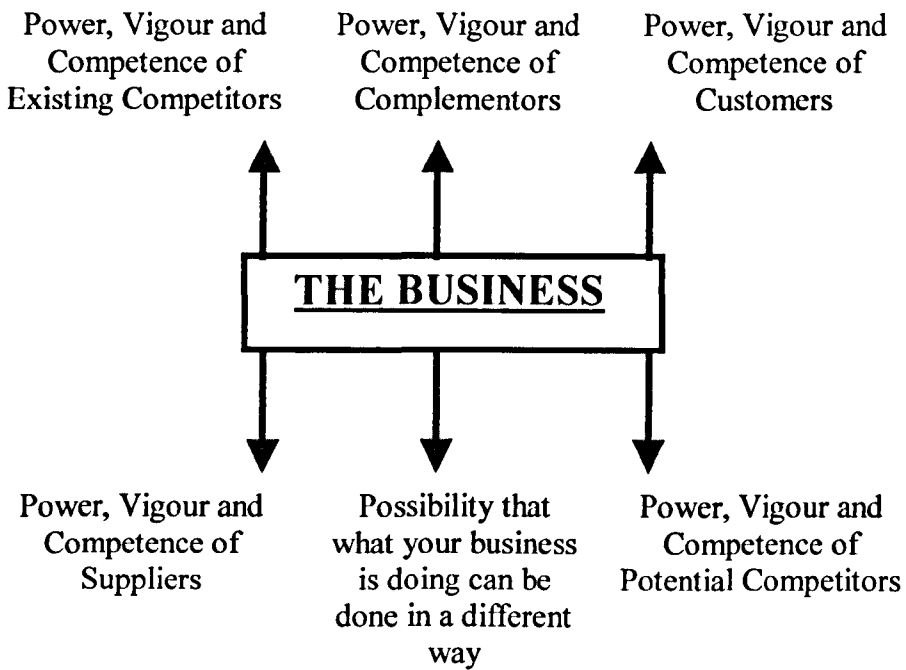
Krugman (1994) and Francis (1995) criticised Porter for concentrating on the 'macro' issues of poor industry performance rather than problems internal to the industry and they identified poor management as a key problem. Baden-Fuller and Stopford (1992) also criticised Porter for looking at the 'larger picture' by categorising industries as profitable or not and highlighted that there can be a mix of profitable and non-profitable firms within an industry and that by categorising the industry as a whole a false picture can be portrayed.

3.5.1 Adaptation of Porter's Model – the Sixth Force

Andrew Grove, past President and CEO of Intel Corporation, adapted the Five Forces Model to include a sixth force, that of the influence of Complementors on the industry. Grove (1997) defined Complementors as other businesses from whom customers buy

complimentary products; the two support each other, for example a computer needs software but without the computer there is no need for software.

Figure 8: Six Forces Diagram



Source: Grove A. S., 1997, *Only the Paranoid Survive*. HarperCollinsBusiness, London. pp. 30.

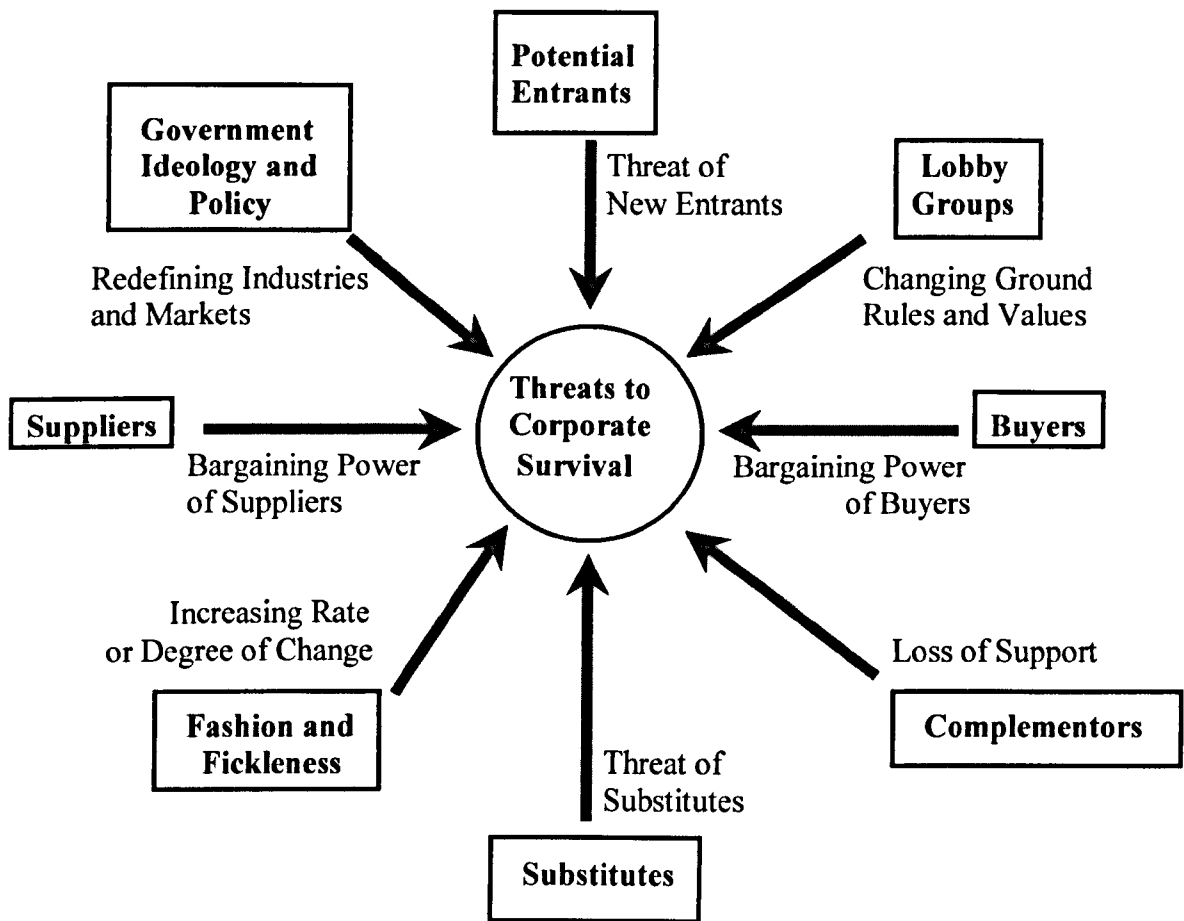
Burgelman and Grove (1996) identified that a business reaches a point, called the Strategic Inflection Point, where it must change its strategic direction to remain competitive. This point is caused by a distinct change in one of the six forces and Grove (1997) identified this as the '10x' change.

Porter (1980a) highlighted the importance that regulation and the government can play in certain industries and Grove (1997) identified this as being a '10x' force in certain industries as it can change the way firms have to produce their products and the way they compete within their environment. O'Shaughnessy (1996) also identified the limitations of governments in being able to make strategic choices that can help to support and sustain national, rather than industry, competitive advantage. The introduction of the CPD, is seeking to improve the competitive advantage of European firms with the intention that these firms will then be in a better position to compete within global markets, both industry and EU competitive advantage.

3.5.2 Adaptation of Porter’s Model – the Corporate Survival Model

Macmillan and Tampoe (2000) have developed Porter’s model further by expanding it to incorporate two more forces, Lobby Groups and Fashion and Fickleness that are present in current markets. The model also identified that firms must consider how these forces act not only on their own organisation but also how they act on their rivals. This is the centre point of the model, threats to corporate survival.

Figure 9: Corporate Survival Model



Source: Macmillan H and Tampoe M, 2000, Strategic Management. Oxford University Press, Oxford, pp. 103.

Lobby groups, such as environmental groups like GreenPeace, try to influence Government policies and can also influence customers behaviour towards your product. Fashion and Fickleness are related to the reduction in brand alliances by the customer due to the increase in product choice and the availability, through the Internet, to a wider market. O’Shaughnessy (1996) identified the importance of cultural aspects in

industry and criticised Porter's model of Competitive Analysis on Nations as ignoring this factor. As markets become increasingly more open, industry must consider the Fashion and Fickleness factor that is influenced by culture.

3.6 Consideration of the Models

The models that have been identified above consider business analysis. Porter (1987) suggested that corporations do not compete but business units do. The strategy of a business unit therefore must be holistic, considering both the industry and the corporation it is within. Ansoff (1965) stated the need for an external appraisal when considering product-market change and identified that a competitive profile of the industry must be carried out and tested to match the competence analysis of the firm. One of the limitations of product-market matrixes has been identified as their lack of ability to reflect external environment changes quickly. They are too static and do not consider overlap and sharing between the different portfolios (Andrews, 1980; Naylor, 1986).

Environmental scanning has been identified as essential in any development of strategy (Engledow and Lenz, 1989; Johnson and Scholes, 1993; Gouillart, 1995) as an organisation needs to react to changes in its working environment and 'best fit' a strategy to these changes based on the organisations capabilities. PEST analysis is the most common method used when considering the environment. It is an analysis of Political, Economical, Social and Technological factors. It is not a model but a framework for gathering and analysing information considering the macro-environment a business operates within. For environmental scanning to be of use to organisations it must be a continuous process and built into the corporate planning process (Jain, 1981; Johnson and Scholes, 1993).

3.6.1. The Analysis Tools to be used in the Case Study

The SWOT analysis and Porter Competitive Analysis Model have been applied in the case study to show an analysis of the UK Brick Industry. Hamel (1991) stated that the Porter model, only focuses on product-market positioning and by using the SWOT analysis of the firms and the industry, the core competences can be identified and applied in the competitive analysis of the industry. Grant (1991) stated that a firm's competitive advantage is embedded in the firm's core competences. The case study

interviews identify what the firms perceive as their competitive advantage and compare it with the core competencies identified in the SWOT analysis.

The SWOT analysis was carried out by the individual manufacturers to identify the internal and external factors that UK brick manufacturers are concerned with. Although the SWOT analysis is primarily used to analyse an organisation, in the case study it has been adapted to consider the UK brick industry and then applied to the Porter Model. Both these techniques have been used to produce an analysis profile of the UK brick industry and further explanation to the suitability of these analysis tools is given in Chapter eight.

Good strategies should build on strengths and exploit opportunities. As each firm will be facing a different set of opportunities and threats and each will have differing strengths and weaknesses, the strategies that result should be unique to that firm. The CPD and the impact of European measures are affecting the firm's external environment and the manufacturers should be adapting to these changes. The case study interviews examine these constraints and the impact on the UK brick industry.

4.0 Barriers To Entry

Firms are restricted in entering markets by entry barriers. Rugman and Verbeke (1991) define an entry barrier as being:

'a constraint that prevents a firm's (potential) rivals from taking over and eliminating the firm's product-market domain.'

Bain (1956) was the first to study barriers to entry and he identified economies of scale, product differentiation and absolute cost advantages as the main barriers to market entry. A study by Karakaya and Stahl (1989) reviewed the literature and identified nineteen different market entry barriers. These were as follows:

- Cost advantages of incumbents
- Capital requirements
- Access to distribution channels
- Advertising
- Research and Development
- Technology and technological change
- Divisionalisation
- Sunk costs
- Incumbent's expected reaction to market entry
- Possession of strategic raw materials
- Product differentiation of incumbents
- Customer switching costs
- Government Policy
- Number of competitors
- Price
- Seller concentration
- Market concentration
- Brand name or trademark
- Selling expenses

Layton (1971) also identified market features of technological or economic conditions as a barrier to entry and also in raising the costs of firms already in the market. A high degree of product differentiation creates a barrier to entry due to costs on advertising and sales promotion to overcome the loyalty of consumers to existing brands. Similarly, economies of scale in the industry may require the new firm to enter at a very large scale of output, if it is not to suffer a disadvantage. But the need to capture a large part of the market may cause a fall in prices and profits and make entry unprofitable.

Porter (1980b) discussed the economies of scale and cost advantages independent of scale, as separate entry barriers. These two barriers are closely linked as they both relate to the incumbents' as having cost advantages. Day (1984) listed five of the market entry barriers, but treated the cost advantages of incumbents as a single barrier consisting of scale economies, experience, or unique factors. Therefore, 'cost advantages of incumbents' is treated as one entry barrier.

Michael Porter (1980a) has written extensively on barriers to entry and identified the six major sources of barriers as being the following:

4.1 Cost Advantage of Incumbents

This is one of the most important entry barriers, and usually results from economies of scale and learning curve effects. Cost reduction strategies are used by existing firms to

discourage new market entrants, as a new entrant has substantially higher costs than the incumbent firms.

4.2 Product Differentiation of Incumbents

The established firms have brand identification and customer loyalties stemming from past advertising, customer service, product differences, or from simply being first into the market.

4.3 Capital Requirements

The need to invest large financial resources to enter a market and compete in that market, constitutes as a barrier to entry, and is higher in capital-intensive industries. The stakes required for market entry may be so high that new firms will not be willing or able to enter the market. Also the risks of competing may be too high for those firms that have the resources necessary to compete.

4.4 Customer Switching Costs

While a consumer may be willing to change brands for frequently purchased products, persuading a manufacturer to purchase from a new and unproven supplier is often difficult. Switching costs can be employee retraining costs, cost of new ancillary equipment, the need for new technical help, product redesign, and prevent the buyer from changing suppliers. The use of single-source suppliers and just-in-time inventory systems further strengthen buyer and seller relationships.

4.5 Access to Distribution Channels

First or early market entrants use intensive distribution strategies to limit the access to distributors for the potential market entrants. Marketing middlemen often reject new products from unknown suppliers because they do not have established brand identities in the marketplace.

4.6 Government Policy

Governments may impose various constraints on market entry with the most extreme competitive barrier being the granting of a monopoly. This can vary between industries and could be the control of licensing requirements and/or access to raw materials. Governments are increasingly using environmental legislation to protect home markets.

Karakaya and Stahl's research (1989) supported Porter's six barriers to market entry, although the barriers differ in degree of importance with cost advantages perceived as the most important entry barrier, capital requirements second and product differentiation third. All six were perceived as important factors in influencing executive decision makers in the market entry decision.

Shepherd (1979) highlighted that barriers to entry decrease the likelihood, scope, or speed with which potential competitors can come into the markets and this therefore enables the incumbents to have above-average profitability. Yip (1982) stated that economic theory on barriers to entry suggested that various elements of industry structure could impose disadvantages on entrants relative to incumbents leading to fewer entrants to the market. Porter (1980b) also stressed that barriers give incumbents inherent advantages over potential entrants. Mann (1966) and Shepherd (1979) supported this view that barriers to entry influence profit rates. Shepherd believed that barriers to entry vary by the characteristics of the market or market structure. They range from high to low in pure monopoly, dominant firms, and tight oligopoly conditions, whereas free entry exists in monopolistic and pure competition markets.

While in theory, commercial enterprises will have greater freedom of movement in the Community, at the same time firms from elsewhere in the Community should find it easier to penetrate the home market. If practice matches the theory to a significant degree, firms that have not geared themselves up for the SEM, may well be struggling to be competitive in the early years of the new millennium.

5.0 Market Entry

Research highlighted that one of the most important benefits of being the first market entrant or a market pioneer is the cost advantage (Schmalenense, 1981; Porter, 1985; Robinson *et al*, 1985). This is consistent with the business-level strategy of cost leadership. Karakaya and Stahl's study (1989) found that the only barrier not considered different between consumer and industrial market entry is capital requirements.

Potential new entrants attempt to overcome the barriers by being competitive, by achieving the same cost advantages as the incumbents. They must identify the relative importance of the barriers before making entry decisions.

Some firms enter markets early and others enter late. Jain (1981) identified three ways in which the late entrants or laggards come into markets:

1. The imitator enters the market as a 'me too' competitor,
2. The initiator questions the status quo and, after doing some innovative thinking, enters the market with unconventional strategies,
3. Some companies enter stagnant markets with modified products.

According to Porter (1980a), firms use three major entry strategies:

1. Entry through internal development, which involves the creation of a new business entity in an industry,
2. Entry through acquisition,
3. Sequenced entry, which entails initial entry into one group and subsequent mobility from group to group.

In markets where barriers to entry are strong, many firms attempt to enter by way of acquisition, this can be said of construction.

5.1 Entry Strategies

There are several ways to enter a market and the entry strategy will depend on the product, the firm and the entry barriers that are present in that market. Below is a list of entry options. Those options available to construction material producers will be expanded on further when discussing the strategy options that firms can take when involved in European and/or global markets.

- Exports
- Franchising
- Licensing
- Open a Branch Office / Subsidiary
- Joint Ventures

- Mergers and Acquisitions (M&A)
- Countertrade

5.2 Summary

The option that the firm takes would depend on the company's desired market scope, its resources and capabilities, and the entry barriers of that market. It does not matter how attractive market opportunities may seem, entry strategies will fail if the firm lacks the requisite skills and resources internally or underestimates the difficulty of acquiring them externally.

It is hoped that the Single European Market will improve industries competitiveness. Although Europe is not forming a 'fortress' Europe, it is hoped that by improving the competitiveness of industry, for example, developing economies of scales due to the increased market and sharing R&D resources, barriers to entry will be developed.

The next section investigates in more detail strategies that construction product manufacturers could use to enter the European and International markets and improve their competitive position within those markets.

6.0 Strategies To Enter European and International Markets

Economies of scale, product differentiation and patterns of trade have long since been recognised as factors in the framework for the pattern of international trade (Balassa, 1967, Grubel, 1970, Kravis, 1971). When two imperfectly competitive economies are allowed to trade, increasing returns produce trade gains even if the economies have identical technology and factor endowments. Krugman (1980) commented that these increasing returns and transportation costs would be an incentive for firms to concentrate production near the largest market. By concentrating production in one place scale economies can be realised and by locating near the larger market, transportation costs are reduced. This point, which is more often emphasised in location theory than in trade theory, is the basis for the common argument that countries will tend to export those kinds of products for which they have relatively large domestic demand.

This is the case for the majority of construction product manufacturers, especially for the low-value mass products such as brick. Exports are basically a means of distributing products or services to foreign markets from the domestic market and can be direct or indirect. Direct export involves the home-based staff selling direct to the buyer and indirect uses a 'middleman' to link your product with a buyer, such as government or private buying agencies.

6.1 Product Innovation and Differentiation

Global competition and shortening product life cycles have meant that manufacturing has had to become flexible in design and developing and delivering products faster and in greater variety (Krafcik, 1988; Stalk, 1989; Oliff and Marchand, 1991). Strategies based on flexibility are a fundamental shift from past strategies dominated by cost, market share and quality. Achieving greater flexibility requires linking product development and manufacturing processes in new ways through deployment of information technology and effective use of information sources and systems (Dumaine, 1989; Hayes and Wheelwright, 1984).

Von Braun, Head of Technology Strategy at Siemens (1990), stated that competition is increasingly about product quality and novelty rather than price and this has led to a rapid shortening of average product life-cycles. The capacity to manage successful innovation with accelerated product changes becomes a critical source of competitive advantage. Marchand (1988) described strategic information management between managerial and technical strategies as improving information use and content to enhance manufacturing performance and co-ordinate manufacturing activities across functional and business unit lines in pursuit of competitive advantage.

Schumpeter (1934) described the innovative process as a constant search for the monopolistic profits of being the first and stated that innovation is about avoiding competition rather than improving competitiveness. The Processual conclusion is that innovation is a somewhat uncontrollable process (Quinn 1985).

Integration should take place between merged companies before product differentiation as the companies will lose important scale and innovation advantages due to each company maintaining autonomy. Companies should designate a clear home base that

has global leadership for each product line and must restructure R&D and production accordingly. Once this has been done, the greater cultural sensitivity of European companies can be turned to advantage in the ability of each product unit to penetrate local markets.

6.1.1 Implications on the Strategy of the Product

The Classical approach advocates a strong market orientation as essential for successful innovation. Effective innovation comes from seeking out customer needs and matching them with appropriate product or service offerings (Levitt, 1960; Cooper and Brentani, 1991). Innovation as a growth strategy has increased the importance of having a marketing strategy and Cooper and Brentani (1991) described it as one of the most important business functions affected by the single market developments. The shortening of product life cycles, faster product introductions and greater demands of increasingly sophisticated consumers has increased the need for greater R&D-marketing integration. Instead of a strategy being imposed on R&D, research is increasingly seen as the origin of the firm's strategic capability.

6.2 Cross-Border Mergers And Acquisitions (M&A)

Industry consolidation in terms of mergers and acquisitions as well as strategic alliances has been identified as the most significant strategy tool used to improve global competitive positions (Porter, 1991b). M&A lead to a 100% owned operations. Stewart *et al* (1963) described a merger as an acquisition that takes place with the agreement of the board of the acquired company. Stewart *et al* (1963) and Jones (1982) identified the difference between a merger and a take-over as gaining control of the assets of a company without the support of the board of directors and is more associated with a hostile bid.

There are basically two categories of M&A:

1. Purely domestic, where companies team up with their local competitors in order to become larger so they can allegedly be more competitive within Europe.
2. Companies acquire or team up with other companies from other nations to fill out their European network.

M & A can permit firms to circumvent barriers to trade and operate as domestic firms, unaffected by duties, tariffs, other import restrictions and customer preferences to buying domestic products. This restructuring in markets can reduce cost inefficiencies and improve productivity by achieving greater economies of scale.

There was an abundance of mergers and cross-border acquisitions by companies looking to streamline activities for '1992' and this has continued to increase due to changes in stock markets and competition rules. Firms based in borderline countries of Europe may consider moving their Headquarters to the centre of the EU, or at least the establishment of a centrally located co-ordination office. Some firms have set up pan-European office in Amsterdam or London with product line management teams and/or marketing/communications staff to co-ordinate the company's marketing strategy throughout Europe. While it is difficult to generalise across different industries, there is likely to be a definite trend towards more centralised production and much greater standardisation in procurement, financial activities and accounting.

6.2.1. Standardisation of Marketing Strategy

The trend towards greater standardisation will be different for the separate functions of marketing, for example greater co-ordination in brand names, product or service image and advertising themes. Firms will benefit by having a centrally co-ordinated planning approach to distribution and marketing information systems, reducing costs and improving service.

As market unification accelerates, the need to ensure consistency in marketing strategy, especially in product positioning and pricing, will become more apparent. If the vast price differentials between different national markets are reduced, products are likely to be positioned in a standardised manner throughout the European market. Daser and Hylton (1992) identified that there is a general trend towards pan-European marketing strategy planning by larger multinational firms operating in the EU.

Global orientation will be applied to a wide range of products not only in consumer and durable product areas, but also in the industrial and services fields. The pressure on management will be to seek out large global applications for new products to make their research and development investments more profitable. As the harmonisation of

product norms and trademark registration continues within the EU, marketers will feel more encouraged to position brands with a global identity. Product/service quality and customer services will be what differentiates a company.

6.3 Integration

The success of any M&A will depend on the level of integration that can be achieved. The company must achieve integration across countries as well as being sensitive to local differences within the different competing countries especially with marketing.

The integration of the European markets sets UK companies three specific challenges.

1. To identify where their organisations and operations need to be integrated and where they can remain nationally based.
2. To establish how much co-ordination is required and how much further the business will need to be integrated in the future.
3. To overcome the traditional national attitudes of the people and their organisation so that they take broader, more co-operative approaches.

Company integration must be both economical and cultural. The merging companies must not maintain all the same independence and autonomy as before. Porter (1991b) stated that if the group is going to be more competitive, it must be integrated and that means each product line has to have a clear home base, which must be the country with the most favourable factors. Bartlett (1991) stressed that companies have to be concerned with national circumstances. Companies are going to move more to product-line bases because the problems of co-ordinating dispersed production, R&D, and product development among equal subsidiaries in different countries is a next-to-impossible problem. Porter (1980a) stated that the company with a clear home base in a dynamic location would always innovate faster than the company that is trying to co-ordinate.

Barriers to integration are one of the problems facing European companies and if they cannot overcome these barriers, then they will simply be at a competitive disadvantage. Cultural diversity can be seen as such a barrier and if it prevents integration, then it is a disadvantage. However, if it does not hinder integration, then cultural diversity may

actually give the European companies an advantage in terms of sensitivity to national market differences. European companies are more accustomed to being sensitive to cultural differences and this will help in other countries outside the EU. It is always important for multinationals to be sensitive to local differences and to adapt them in ways that do not undermine global advantages.

6.4 Diversification

For Classical and Evolutionary perspectives, diversification is a perfectly logical development, ensuring the rational and efficient use of resources. Chandler (1990) explained the origins of big business in late nineteenth-century and early twentieth-century America in terms of the firms' need to maximise resource utilisation through economies of scope and to minimise the transaction costs entailed by ever more complex chains of supply and distribution. Firms find themselves having to integrate both backwards and forwards. Simple market transactions would be too unreliable for the new scale of operations. Backward integration into buying, storing and production is essential to secure supplies on a sufficient and regular enough scale to feed the market. Forward integration into distribution and marketing is necessary to ensure a steady off-take in the market and to prevent any rapid accumulation of stocks.

Diversification arises from the need to internalise the transfer and application of intangible assets such as knowledge, learning and experience, within the same ownership structure, rather than attempting to trade them on the market. Given the imperfect capital markets, the skill which conglomerates are able to apply to a range of situations is the identification and exploitation of new business opportunities, whether related or unrelated. Diversification, either vertically or horizontally, can provide profits through exploiting market power as well as simple efficiency.

Rumelt (1977) identified corporate diversification as the acquisition of businesses that are then run by the corporation, not investments managed by outside organisations. Good diversification strategies are when the businesses are related so that resources can be shared. It has been shown that non-related diversification is poor in capital return and is therefore not a good strategic move by the business. Imai and Itami (1984) identified Japanese diversification strategies as capabilities-driven and American strategy as being demand-driven.

Chandler (1990) stated that the problem for diversifiers was not strategy, but organisation structure. Within their existing structures, the co-ordination costs of managing widely different businesses grossly exceeded the benefits of diversification. Efficient co-ordination requires that diversification strategies should be matched by divisional organisational structures. By moving from centralised functional structures of single business units towards multidivisional structures, companies should be able to make diversification strategies pay.

The functional organisation fails when the size and the diversity of business produces an operational complexity beyond the capacity of top managers to comprehend, at the same time as creating scope for opportunistic pursuit of departmental rather than aggregate goals. The multidivisional form allows information to be sifted through divisional managers, and frees top management from departmental interests, so they can concentrate on overall strategy. The multidivisional form is the most efficient way of dealing with the complexity of diversification.

Male and Stocks (1991) identified that in contracting, diversification has been a deliberate policy and has tended to be, especially internationally, to be either non-construction related or towards housing.

6.5 Internationalisation

The world economy is steadily internationalising. Foreign Direct Investment (FDI) is the direct ownership of foreign activities and is a form of integration but with a spatial element. FDI by the twelve leading OECD countries quadrupled over the ten years to 1990, reaching \$193.5 billion (OECD, 1992). Williamson (1985) stated that the internalisation of multinational activities within one enterprise is presented as an efficient response to international market failures, known as the transactions costs approach.

Porter (1985) stated that in terms of game theory, state-backed multinationals, playing by different rules, are likely to prove bad competitors and good competitors are those multinationals that offer sufficient challenge to prevent complacency while never enough to disturb the balance. Porter advised that the powerful players should preserve some gentle competition rather than fight for complete market dominance: followers

should shelter under the umbrellas of industry leaders rather than attempting all-out attack. If all competitors recognise and play by the same rules, self-destructive battles over market share can be avoided. However, in global competition such good competitors are hard to find. Competitors from different countries may have different resource advantages and different objectives, especially if backed by their nation states. The game theory can provide vital insights into oligopolistic competition so long as the players are following the same rules. It is less reliable if competitors do not conform to Classical rationalities. Rugman (1980) highlighted that in international competition entrepreneurial nation-states refuse to follow the rules of profit maximisation, as was the case in France during the 1980s, multinationals were able to expand overseas under the patronage of the state.

The question is often asked why use FDI as a strategy when less risky entry options can be used. The advocates of internalisation treat FDI as just another form of diversification explicable in terms of transaction costs. Rugman (1980) identified that companies prefer to co-ordinate their international transactions by hierarchy because of the problems of overseas trade that make international markets much less efficient than domestic ones. He identified the problems as the lack of legal control over opportunistic cheating and the distortions introduced by tariffs and customs delays. These problems should be reduced with the Single European Market measures coming into force.

Cowling and Sugden (1987) concluded that multinational strategy is a game of creating and defending oligopolistic positions from which to extract uncompetitive profits from dominated consumers. The more multinational players are, the greater their advantage.

6.6 Summary

The best response to protected large-scale international competition is for governments to create their own giant national champions. The state should take the lead in encouraging mergers and consolidations and in designing long-term industrial strategies to build national competitive advantage. The state can provide an overall strategic direction by identifying key sectors and supporting their development through the provision of finance, training and R&D; then it is up to market mechanisms to undertake actual implementation. To a certain point, the measures of the SEM should

help to provide European organisations the environment to develop into 'European champions', so they have the market position to compete internationally.

The implications for UK construction product manufacturers are clearly evident in the restructuring of the industry through the number of mergers and acquisitions that have taken place. The restructuring of the Brick industry in the UK is discussed in chapter eight. The most suitable strategy for construction product manufactures is in cross border mergers and acquisitions to truly take advantage of the European and international markets. The nature of the industry, in most cases involving high production costs, restrictions on locating production facilities near markets due to the raw materials requirement for production and high transportation costs due to the low value to unit mass of some products, limits the growth strategies that manufacturers can make. Blackwell and Hensley (1992) stated that UK companies have responded fairly actively to the challenge of Europe with most having included the SEM in their strategic thinking. The most evident strategic move is the expansion of European operations, often by acquisition.

Smaller manufacturers must also consider their strategies to remain competitive in their markets and they may adopt strategies concentrating on their existing products and services offered, product innovation and quality of service. Vandermere (1993) used the phrase 'From Tin Soldiers to Russian Dolls' to describe the change in the business environment. The 'Tin Soldiers' reflected the product-focused attitudes and systems of many companies up until the late 1980's. Companies were immersed in technical innovations and manufacturing efficiencies that they forgot the customer requirements. The 'Russian Doll' image reflected the new customer-focused company that sees its people, processes and core markets as a whole, made up of interconnected and interdependent parts. This is the area that the smaller manufacturer can develop strategies in for their markets.

It is the customer that now directs the manufacturer, they have so much more choice and buying power that if your product is not what the customer wants they will not buy it. The CPD aims to create this wider choice in the building materials market and Product Manufacturers must change their strategies to take this into account. The customer still has the right to choose the product they want, the manufacturer will have to develop

their strategy to incorporate this. The case study interviews will address these issues by analysing both large and small manufacturers within the UK brick industry and the analysis and results are presented in chapter eight.

7.0 Conclusions

Trading blocs, such as the SEM, lower impediments to the flow of goods within that bloc and around the world. This means that companies without true competitive advantage will fail. In many European countries, there are companies that have no reason to exist except for artificial distortions within the European market. Non-tariff barriers affect the comparative advantage of countries. The emergence of the SEM will eliminate the barriers that have protected some companies, and the companies based in the most fertile environments for innovation will survive and succeed. If the SEM creates barriers to external trade it will allow European companies to survive, but they will lack true advantage.

Those companies that have already adapted strategies for the SEM have done so to try and be the first into the markets and gain consolidation in Europe and competitive positioning for global markets. European companies are using M&A as a growth strategy in the USA, as the US market remains an important goal in the Single Market strategy of aggressive European companies.

This research aims, by looking at the strategies of the brick manufacturers, to highlight whether the materials industry is taking the opportunity to protect their market position by developing barriers to entry to competitors. By introducing some of these areas that are known to be barriers to entry, the EU is hoping to increase the possibilities of sustaining the industries in Europe.

There will always be some form of informal unofficial barriers to trade even though the SEM is aimed at removing non-tariff trade barriers. A company, when deriving its strategies, will still have to look at the problems that were there before the SEM such as, cultural, locational, geographical, and brand names. Companies must be aware of their own strategic changes, but also what other competitors are doing to prepare for these changes. What your competitors do will invariably affect what your firm has to do.

In chapter eight the analysis models that have been identified in this chapter will be applied to the UK brick industry. Market entry barriers and the entry strategies identified in this chapter will also be examined with regards to the UK brick industry and compared with the previous research identified in this chapter. This comparison will take into account the specific characteristics of the construction industry and the UK brick industry that make these industries different to other manufacturing sectors, as examined in chapters two and eight.

CHAPTER SIX

RESEARCH DESIGN AND METHODOLOGY

1.0 Introduction

This chapter identifies and justifies the methodology that has been applied to the research and explains the design and methods that have been used. It also identifies the stages to the research in relation to the development of the hypotheses and the methods of data collection that were used and why. The analysis and conclusions of the questionnaire survey and the case study interviews are discussed in more detail in chapters seven and eight. This chapter also discusses some of the issues that are relevant in Construction Management research at present and how they impinge on this research.

2.0 Definition of Research Applied to this Study

First, it is important to identify what is meant by the term research in this thesis. Smith (1929) described research as being:

'fundamentally a state of mind involving continual re-examination of doctrines and axioms upon which current thought and action are based. . critical of existing practices'.

Bagnall and McClelland (1998) defined research as the function that allows us to obtain information and data about activities, events and occurrences in order that we can identify, define, monitor and better understand issues, problems and processes through evaluation. Research should highlight the information required to address the issues, problems or processes, then identify the data gathering design and methodology best suited to the information, provide interpretation of the results and present arguments, discussion and critical evaluation of the findings. Howard and Sharp (1983) stated that the role of analysis was to supply evidence that justifies claims that the research changes belief or knowledge and is of sufficient value. In order for this to be convincing, the analysis must be based on reliable data and satisfy the principles of logical inference.

In this respect, the study has attempted to:

- detail historical developments and present situations within a European context
- evaluate existing practices and processes that are applicable to UK construction product manufacturers

- examine existing strategic management theory and analysis models that are applicable to UK construction product markets.

Once these had been investigated, it was then possible to evaluate the impact of the CPD on one particular product group, the UK brick industry, and also to adapt and apply an analysis model to this industry, which has never previously been done.

This work is not concerned with the creation of a new base of learning through pure research, but rather the exploitation of existing knowledge through applied research. Beveridge (1957) described applied research as a:

'deliberate investigation of a problem of practical importance, in contradistinction to pure research done to gain knowledge for its own sake'.

Where the application of existing knowledge might be limited to finding a solution to a particular problem, then by seeking to understand the underlying principles, it is intended, as with this research, to achieve a wider general application. Blakie (1993) identified this as a Positivist approach, looking to explain and evaluate grounded theory between certain phenomena whereas the interpretivist approach is to understand and change the phenomena. McClelland (1999) identified that deduction is related to positivism and links active experimentation to abstract conceptualisation. That is to say that it is concerned with rationality and testing theories. Induction is the reverse of deduction and seeks to construct explanations and theories about observations. This research is looking to explain and evaluate the CPD and its impact on the strategy of construction product manufacturers and is therefore taking a positivist approach.

3.0 Construction Management Research

In the late 1990s there was quite a debate into the standard of construction management research, breaking down into what is seen as construction management and what levels of quantitative and qualitative research is needed. (Hughes, 1997; Seymour *et al*, 1997, 1998; Runeson, 1997; Wing *et al*, 1998)

Wing *et al* (1998) defined construction management theory as the body of knowledge of construction management (however that is defined) which currently is established and accepted as explaining the most effective management of construction projects and

asked 'is construction management research looking into the construction industry or research into what construction managers do?' Hughes (1997) stated that construction management is not a different set of management, but a sub-set of management and that problems faced in the construction industry are examples of problems already faced elsewhere. He defined good research as that which contributes to our understanding and describes models of scientific enquiry as useful in defining research projects and in acquiring data. Runeson (1997) defined construction management as a set of functions where different techniques are employed. Some of the functions can be explained by scientific theories and some have a theoretical background.

Hughes (1997) highlighted that research into construction management needs to use recognisable tools and techniques of fundamental disciplines and the problems that the construction industry faces are usually examples of problems already faced elsewhere. Wing *et al* (1998) stated that research should not be based on description; it requires analysis, a form of systematic enquiry. It looks for relationships, comparisons, predictions and generalisation. Empirical investigation does not have to be only quantitative; it also can be qualitative.

Although the construction industry is seen as one of the driving industries in the world economy, unlike other major manufacturing industries there is little specific existing literature and research reports looking at strategic management implications and implementation for the construction industry. Chinowsky and Meredith (2000) highlighted this fact and stated that most construction research focuses on the project management side of planning and control of resources and less attention is paid to strategic management.

This particular research is not involved in contracting issues or the management of construction projects, but it still falls into the remit of construction management research. It is investigating the construction materials sector, which, as already detailed, plays a major part in the construction industry. The strategies of construction product manufacturers will be investigated to test their awareness to the European Construction Products Directive and its impact on their market, be this in the UK, Europe or global.

4.0 Research Methods Applied

The data generated by this research falls into one of three categories: primary, secondary and anecdotal. Primary data refers to replies from questionnaires, specific case study interviews and is analysed by reference to defined criteria; secondary data comes from facts and observations collected by others and published in books, journals and technical publications; and anecdotal data is derived from structured conversations with manufacturers and bodies involved in the Directives workings.

Both qualitative and quantitative methods of research have been applied to this study with the main difference between the two being the methodology. Van Maanen (1983) defined qualitative methods as an array of interpretative techniques that seek to come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world. Dey (1993) described qualitative data analysis as a series of related processes that involve describing phenomena, classifying it and examining how concepts interrelate. It involves describing, classifying and categorising data by coding, leading to connections and comparisons of the data to produce an end account. Kelle (1997) stated that when coding and categorising data, researchers bring their own ideas and theories to the research that shape how and what is coded. Analysis of data involves looking for patterns, regularities, variations, exceptions, differences, commonalities and connections between concepts. Dey (1993) highlighted that the researcher must be systematic in order to produce valid, coherent, intelligible accounts of the data and by rearranging the data into a new order, theoretical interpretations can be made generating a new account.

Marshall and Rossman (1989) identified research as using more qualitative techniques at the initial exploratory phase of investigation and more quantitative techniques for answering questions on distribution of certain phenomenon. Yin (1984) and Churchill (1992) defined the major emphasis of exploratory research as seeking to describe ideas and insights into an area and breaking down these broad problems into more precise sub problems. Exploratory research was used for the initial stages of this research and interviews were carried out to gain an insight into the CPD. A questionnaire survey and case study interviews were carried out in the latter stages of the research to analyse the

impact of the Directive on the strategy and the markets of certain UK product manufacturers. This will be detailed further in the following sections.

4.1 Context of the Exploratory Interviews

A series of interviews were carried out to test the initial research hypothesis:

'The Construction Products Directive will impact on the UK Construction Product Manufacturers'.

This was used as the introduction to the interview and was explained within the scope of the aims of the research and the introduction to the researcher. As the interviews were tape recorded, with the consent of the interviewee, the introduction was aimed at relaxing the interviewee and trying to make them comfortable with the tape recorder. The interviews were taped so as to make transcribing the interviews easier and to ensure that all the responses were noted by the interviewer. It was also felt that it would make the interview more fluent as the interviewer could follow up and expand on answers received.

The interviews were carried out within the first year of the research programme and were aimed at gaining information on the workings and the implementation of the Directive from a UK perspective. There was very little literature on the Directive due to the slow speed of its development and the interviews were carried out with people who were involved with the various technical committees to fill the literature gap. The interviews were carried out with two distinct groups:

1. Bodies involved in the formulation of the CPD for the UK. Those interviewed were:
 - British Standards Institute (BSI)
 - Building Research Establishment (BRE)
 - British Board of Agrément (BBA)
 - Construction Products and Materials Sponsorship Division of the DOE (now DETR)
 - National Building Materials Producers Association (now the Construction Products Association).

2. Major UK Producers, chosen because:
 - They already have existing European links and / or
 - The product represents a significant proportion of the total materials involved in a project.

Those interviewed were:

- Pilkingtons – Float Glass manufacturer
- Redland Bricks – Brick manufacturer (taken-over in 1996 by Ibstock)
- Rugby Cement – Cement manufacturer (taken-over in 2000 by RMC Group)
- IMI Yorkshire Copper Tubes Ltd – Copper pipe and fittings manufacturer
- Torvale Group Limited – Mineral Wool Insulation manufacturer (ceased trading in 1997)

The first set of interviews were carried out to gain a full appreciation of the Directive, what it was aiming to achieve and what this would mean for the UK from an ‘official’ stance. The BSI, BRE and the BBA were interviewed to gain information on how the product standards would be affected and what this should mean for gaining compliance to product standards. The second set of interviews were carried out to assess the UK product manufacturers view on the CPD and to understand the process of the technical standard committees.

The interviews were semi-structured, specific questions were identified, but the interviewee was free to respond therefore being unrestricted in scope and flexible in the replies. This was so as much background information could be gained into the Directive and the implementation problems that were occurring and to compare how the two different groups saw these issues. In depth interviews can generate a large amount of data and allow for immediate follow up questions, clarification of points and exploration of meanings. Although the majority of the interview was exploratory, there were some attitudinal questions. Here the perception of the interviewee was asked for on the impact of the CPD on their product. A copy of the interview question sheet and details of the manufacturers and bodies interviewed is in Appendix B.

4.2 Summary of the Interviews

Both groups interviewed believed that the Directive would have an impact, but they differed in the time scale of this impact. The Producers believed that the real benefits would not be apparent for at least another ten years. As the Directive is still not fully operational with full-harmonised European Standards, it is clearly apparent that the Producers belief that the benefits would be a long way off is accurate. All the interviewees sat on their respective materials technical standards committee and were obviously more aware of the problems in Member States agreeing on the components and testing that should be in the European harmonised standard than those that had been involved with the Directive implementation. Hence, the difference in the time scale for the real benefits.

Those involved with the formulation of the Directive believed that the benefits would be in the medium-term and not only for the products market but for the construction industry as a whole. They believed that the advent of harmonised standards would lead to a more competitive market with new products and technology being introduced into the UK improving the overall efficiency and competitiveness of the UK construction industry. The Producers were only concerned with their own position and not the CPD's affect on the whole construction industry.

The Producers were more concerned with the implications the Directive had on their present market position. The major Producers, Redland, Pilkington and Rugby Cement, already had extensive links within Europe, so they were more concerned with protecting their existing markets. They were doing this by investing substantial man-hours in the standards committee. Their involvement in the standards committees was to ensure that the new European Standards resemble closely the current British Standards. This view was also seen in the results of the questionnaire survey that was carried out in the second stage of the research and detailed in chapter seven.

Most large companies have already invested a lot of time and money in gaining other countries' standards and complying with testing procedures, such as the German DIN standard, so do not see any immediate benefits. The smaller manufacturer may feel the impact in the home market and will need to develop strategies to keep their market position in the future.

Both the Producers and the government bodies were concerned with the level of enforcement that the Member States would operate. Without correct enforcement of the Directive, substandard products could be introduced into the market. This would affect the quality of the construction industry and affect the market share for Producers. Producers were also concerned that new non-tariff barriers, for example local regulations that are not covered in the Directive, would be formed. This concern on the issue of enforcement was also highlighted in the questionnaire results.

The interviews were very useful in gaining information on the Directive and the technical standards committees. The material was used to focus on certain research questions and assisted in the development of the research hypotheses. The development and rationale of the hypotheses will be considered in the Section 5.0. It also further defined the literature review and the product groups that would be used in later stages of the research.

4.3 Quantitative Research – The Self Completion Postal Questionnaire

Quantitative research is defined by Creswell (1994) as an inquiry into social or human problems, based on testing a hypothesis or a theory composed of variables, measured with numbers and analysed with statistical procedures in order to determine whether the hypothesis or the theory hold true. Easterby-Smith *et al* (1991) defined the most important feature of the quantitative technique as being that the process of data collection becomes distinct from analysis. Questionnaires are a method of quantitative data collection. Newell (1993) identified that there are two different forms of questionnaires: a document containing a set of questions for respondents to complete themselves or a list of questions that an interviewer reads out to respondents. Both of these techniques have been used in this study. A self-completion postal questionnaire was used to examine six product groups' responses to the Directive and is detailed next, and interviews were carried out in the analysis of the UK brick industry which is detailed further in Section 4.4.

4.3.1 Sample Surveyed

Minium (1970) described the population as the complete set of observations about which conclusions are to be drawn. The target population are the people or objects from which you wish to gain information, in this case the UK construction product

manufacturers. Random sampling requires that every element in the population have an equal opportunity of being included in the sample (Minium, 1970; Fowler, 1993; Coolican, 1994). Random sampling was impractical for this study as to gain a true representative sample would mean surveying an unfeasible number of producers to ensure that the sample would not be biased. For this reason disproportionate stratified sampling was used whereby the sample was chosen by certain criteria. Six product groups were used in the survey that have very different individual characteristics and produce very different products, which is representative of the diverse nature of the materials sector. However, the six groups can be categorised into two different strata as outlined below:

1. Products that are major components within a project and involve a high investment in manufacturing processes and plants for production. The products are not classified as the 'typical' exportable products because of the high transportation costs due to the bulk nature of the product and are categorised as **heavy** products. The product areas to be tested were Portland cement, laminated glass and clay bricks.
2. Products that are minor components within a project and rely more on imported raw materials to manufacture the finished product. The Producers were national rather than international and the products more exportable in nature and are categorised as **light** products. The product areas to be tested were mineral insulation products, copper pipes and fittings and builders' woodwork.

The construction materials sector has been identified as being both vast and varied with over thirty different industries supplying not only the construction industry. By using a stratified sampling technique it is aimed to reduce the heterogeneity of the sample and therefore a smaller sample size can be used whilst still providing a high level of accuracy. This meant that the total population within the stratum could be surveyed.

Fowler (1993) identified that researchers have focused on the sample size or the response rate as a guide to the quality of data received. However, if the questionnaire is poorly designed, the response rate is irrelevant as the answers will still be of a poor quality because the questions were poor. Heberlein and Baumgartner (1978) stated that

if the person being questioned has a particular interest in the research they are more likely to reply and this point was used as one of the criteria in the case study sample.

To improve the response rate of the questionnaire it is important to have a follow up procedure (Dillman, 1978; Heberlein and Baumgartner, 1978). The questionnaire was sent out just before Christmas and the follow up occurred in January. The timing of the questionnaire just before the holidays was not ideal and did affect the response rate in a detrimental way. One of the reasons for not completing the questionnaire is lack of time and periods leading up to and after holidays do tend to be very busy. The response rate is discussed in more detail in the questionnaire analysis chapter.

4.3.2 Questionnaire Design

The questionnaire was designed to mix dichotomous and scaled questions to allow quantitative analysis. Certain questions allowed for a qualitative reply if the respondent felt they wanted to add anything. The scaled questions used a Likert Scale, this allowed a qualitative response, a cognitive attitude statement, to be used as a quantitative variable for analysis (Oppenheim, 1992). The Likert Scale used four points; Not at all, A little, Quite a lot, and A great deal. It was decided to use four points, to stop respondents replying neutral by using the mid-point. This encourages respondents to express an opinion rather than take the 'easy option'. The midpoint tends to be considered as the neutral, do not know or care response. All those in the sample surveyed should have knowledge of the area to express a view and therefore it was decided to use a four rather than five point scale.

The questionnaire was designed to have four sections and to have tick box answers so as to reduce the time needed by the respondent in completing the questionnaire. Example copies of the questionnaires are in Appendix B. Each section had a mix of questions to avoid a response set reply. Rothwell (1993) identified the response set as the respondent's tendency to get into a rut by answering all the questions in the same way. This is normally seen by an alignment of answers all down the middle or to one side. The first section introduced the research area and considered European Awareness. The questions were not technical to help lead the respondent into the questionnaire. The middle sections covered the subject specifics, these being the CPD and the market environment. The final section was on background information of the company and the

respondent. The analysis and conclusions of the questionnaire survey are considered in more detail in chapter seven.

The questionnaire results identified the sample group that would be used for the case study, UK brick manufacturers, and certain key issues that were to be investigated further through a series of exploratory interviews with the manufacturers and the relevant trade associations for the brick industry.

4.4 The Case Study Interviews

Berg (1998) described case study methods as involving systematically gathering enough information about a particular person, social setting, event, or group to permit the researcher to effectively understand how it operates or functions. Adelman *et al* (1977) described a case study as an umbrella term for a family of research methods having in common the decision to focus on inquiry around an instance. In this research the focus of the inquiry is the UK brick industry and the information has been gathered about the industry by carrying out in-depth interviews with product manufacturers and trade associations linked with the brick industry. The case study was both exploratory and explanatory. The in-depth interviews identified the variables and how these interact within the UK brick industry. The main variable that is being investigated is the CPD and its impact on the strategy of the manufacturers.

4.4.1 Sample for the Case Study

The manufacturers are a quota-sample of the target population and the subjects have been chosen because they have similar characteristics and are similar in proportion to those in the target population. Two sampling frames were used to choose the product manufacturers.

1. The companies had answered the questionnaire and requested a summary of the results and all had as their principal product clay bricks and their principal manufacturing plants based in the UK.
2. The size of the firm; the sample included large multi-nationals, medium-sized national and small local manufacturers.

It was believed that by using these sampling frames a representative sample could be taken and limit any bias within the sample.

A total of six manufacturers were interviewed, one of the two largest UK producers, two of the four larger medium sized producers, two of the smaller medium sized manufacturers (one independent and one not) and one small family run manufacturer. The spread of manufacturers accounted for over 50% of the total UK brick production and all manufacturers characteristics of UK brick manufacturers were covered within the sample. This representation of the industry allows inference from the sample to the population to take place. Coolican (1994) stated that it is difficult to ensure that a sample is representative of the target population and believed that a truly representative sample is an abstract ideal, which is unachievable in practice. The possible limitations with this method, as well as potential bias and under representation, is that certain characteristics may be missed, for example those that chose not to take part in the initial questionnaire survey, this is not believed to be the case for this sample.

Three trade associations were also interviewed to obtain a complete representation of the external influences affecting the brick industry. All of the Producers interviewed are members of the three trade associations in some form and therefore the total population of associations relevant to the UK brick industry have been surveyed.

4.4.2 Issues to be Considered when Carrying Out Interviews

When carrying out the interviews, it was important to consider the interaction between the researcher and the groups under study as this can raise ethical, value and practical issues. Cavan (1977) described ethics as a matter of principled sensitivity to the rights of others and believed that this could restrict the choices we make when conducting the research. Values can be taken to be moral and political. Researchers have argued that all social research is undertaken from a particular standpoint that embodies some material interests (Bell and Newby, 1977; Roberts, 1981; Homan, 1991; Silverman, 1997). Becker (1967) saw the issue of values as being a question of not whether we should take sides, since we inevitably will, but rather whose side are we on? As values will be present in all research, Finch (1993) stated that the researcher has a responsibility to be open and scholarly about their procedures and conclusions. The practical issues are related to time, location and finance. These issues affect both the

researcher and the groups being researched and must be considered carefully so as to limit difficulties and not to cause too much disruption to the group being researched.

Ethical and value issues that have been considered when carrying out this research were confidentiality and anonymity, all involved were thoroughly informed of the nature of the research and the methodology to be used and all were made aware of the publication of the results and all were asked if they would like to receive copies of the results.

4.4.3 Interview Structure

The case study took the form of in depth interviews that were carried out with Technical and Marketing Managers, in all but one of the firms, this tended to be the same person. Technical Directors were interviewed from the trade associations. Company documents were analysed to show market position and financial investment and resources.

The interviews were carried out using structured questions; both open and closed questions were used. The interviews were again taped with the consent of the interviewee to aid the flow of discussion and flexibility of the interview. The questions were in four sections; general company information, involvement with the CPD, market environment, strategy and company information with regards to resources and production processes. The interviewees were also asked to complete a SWOT analysis for the UK brick industry and their own company. This was to be analysed and compared with market reports on the industry and to produce a competitive analysis model for the industry.

The interviewees also were asked to complete three tick box questionnaires using the four Likert scale of Not at all, A little, Quite a lot and A great deal. The same scale was used as for the questionnaires as all the interviewees were familiar with this style having taken part in the questionnaire survey. These questionnaires were based on previous research that had been applied to other industries or different sectors of the construction industry. The analysis would produce results for the UK brick industry and these could be compared against previous research findings. The interviews were used to identify key features that may be either unique or common to the sample and to show how they affect and influence the industry. Chapter eight analyses the case study interviews and

presents the conclusions. Copies of the Interview Question documents are in Appendix C.

4.4.4 Interview Analysis

A mix of both open and closed questions was used in the interview to allow for clarification and elaboration to take place on dichotomous questions and therefore allowing for both quantitative and qualitative data analysis. The qualitative data analysis involved examining the content of the replies through coding. Charmaz (1983) described qualitative coding as creating categories from interpretation of the data and Strauss and Corbin (1990) identified codes as not denoting facts but 'breaking up' the data. However, Charmaz (1983) identified that quantitative coding involves preconceived, logically deduced codes into which the data are placed and Kelle (1997) identified this as a hypothetico-deductive research strategy.

The interviews were coded using a qualitative approach that is to say that through coding the replies, connections were made allowing structures in the data to be explained. Kelle (1997) identified this as both an abductive and inductive process. Through induction we can explain or describe a particular empirical phenomena by considering it under an already existing category and through the process of abduction, new and unknown concepts or rules can be found based on irregular events.

The taped interviews were transcribed into a word processing package and then broken down into each question by simply using the cut and paste function. This allowed all the replies to be analysed by using the word search tool to calculate the number of occurrences of certain words and phrases. May (2001) identified transcribing the interviews as an invaluable analytical stage of becoming familiar with the data. There are several Computer Assisted Qualitative Data Analysis Software (CAQDAS) such as Nud*ist and Ethnograph that have been developed to analyse qualitative data. They have not been used in this analysis as the data generated is relatively small. Coffey *et al* (1996) identified that the use of CAQDAS differs little from that of manual techniques and its main benefit is in analysing large sets of data. Chapter eight details further the interview analysis and results are presented.

5.0 Development of the Research Hypothesis

The initial research hypothesis was that:

'The Construction Products Directive will impact on the UK Construction Product Manufacturers.'

This was tested through the early stages of research by exploratory interviews. These interviews enabled the hypothesis to be developed to consider the question of the 'impact' and to concentrate on one particular area of the UK product manufacturers business, their strategic decisions due to the CPD being a change to their business environment. This led to the hypothesis that:

'The Construction Products Directive will impact on the strategic decisions that UK Construction Product Manufacturers make to changes in their business environment.'

To test this hypothesis it was broken into sub-hypotheses that would be investigated both separately and together.

The first sub-hypothesis was that:

'UK Construction Product Manufacturers will be affected by the introduction of the European Construction Products Directive.'

To test whether the manufacturers see the Directive as having an affect, it must first be determined whether manufacturers are aware of the Directive and its aim. The primary aim of the questionnaire survey was to ascertain the awareness of UK manufacturers to the CPD and other European measures on their product and their company. Those manufacturers that were aware of the Directive, completed the questionnaire survey which investigated the affect and examined whether it would be direct and/or indirect on the manufacturers.

The second sub-hypothesis was that:

'The Construction Products Directive will impact on the strategic decisions of UK Construction Product Manufacturers.'

The UK Brick Industry was used as a case study to investigate whether the Directive has had an impact on the manufacturers strategy, specifically concentrating on market strategy. The impact will be examined to ascertain whether it is:

- Positive and Producers will adapt to it
- Negative and Producers will do nothing
- Producers do not see a 'real' impact and therefore see no need to adapt their strategies.

By testing each of the areas the true overall picture will be discovered and the main research hypothesis will be either proven positive or negative.

6.0 Conclusions

A positivist approach has been taken with this research. Exploratory research methods have been used at the early stages through interviews to gain an insight into the Directive and to focus on the areas of strategy and market entry and barriers that affect the UK construction product manufacturers. Quantitative data collection was applied in the next stage, by a self-completion postal questionnaire to certain product manufacturers categorised by defined criteria. The final stage was to adopt a case study approach. The UK brick industry was the focus of the case study and information for analysis was through in-depth interviews that produced both quantitative and qualitative data for analysis. The analysis and conclusions of the questionnaire and case study interviews are detailed in chapters seven and eight.

Initial research can help direct subsequent research more efficiently and detailed results of later intensive work can refine inferences based on the more general earlier stages. As the Directive is not fully operational at present and the real benefits of the Single Market are not yet evident further research can develop from this study as detailed in the final chapter.

CHAPTER SEVEN

QUESTIONNAIRE SURVEY AND ANALYSIS

1.0 Introduction

A self-completion postal questionnaire survey was conducted to assess the awareness and perceived implications of the CPD on six product groups. The product groups were clay bricks, Portland cement, laminated flat glass, copper pipes and fittings, mineral wool insulation and builders timber and joinery. This chapter will describe the process of conducting the survey and the analysis and results will be presented. Appendix B contains copies of the questionnaire documents and more detail of the replies by product group.

2.0 Survey Sample

The six products were chosen by set criteria that were detailed in chapter six. Stratified sampling was used and product groups were categorised into two distinct strata and this allowed for total population to be surveyed. The variety of the six product groups sampled can be compared to the diverse nature of the materials sector. This representation of the industry allows certain inference from the sample to the population to take place. The details of the firms to be used in the survey were obtained from:

- Product Catalogues
 - Barbour Index: Building Product Compendium 1999
 - Cornings Product Selector 1999
 - RIBA Product Selector 1998
- Trade Association Membership Lists for 1998
 - Construction Products Association
 - Brick Development Association
 - British Cement Association
 - Glass and Glazing Federation
 - EURISOL – UK Mineral Wool Association
 - British Woodworking Federation
 - Copper Development Association
 - British Plumbing Fittings Manufacturers Association
 - British Non-Ferrous Metals Federation

This provided a total of 214 manufacturers to be used in the survey with the largest groups to be clay brick and laminated glass manufacturers. All the manufacturers were based in the UK.

3.0 Pilot Studies

The initial questionnaire was designed with a mix of technical and marketing questions and the questionnaire was to be sent out to the Technical Director/Manager of the Producers in the sample. The questionnaire was first piloted among fellow academic peers and concentrated on the empirical context of the questionnaire; layout and order of questions, terminology, and scale variation.

The questionnaire was then piloted with 3 Technical Directors of construction product manufacturers. The first two pilots were successful and the changes that were suggested were related to terminology. The third pilot study highlighted that as the questionnaire was directed at Technical Managers, some may not be able to answer fully 2 of the marketing questions and suggested that the questionnaire be split into two. The questionnaire was revised and divided into two distinct questionnaires to target the Technical Director/Manager and the Marketing Director/Manager. Certain questions were on both questionnaires so that a comparison could be made between the awareness within a company to the CPD and its importance on technical and marketing issues. The marketing questionnaire was then piloted to the marketing section of the third producer and no changes were advised. A final pilot was then carried out to a Technical and a Marketing Director with the revised questionnaires. The recommendation was to rephrase two questions on the Technical questionnaire and no changes to the marketing questionnaire.

The replies show, however, that the smaller firms have a single Director who deals with both marketing and technical issues and generally only one completed questionnaire was returned with the comment that they had been sent two similar questionnaires. From the total survey only **two companies** returned both the technical and marketing replies. The technical questionnaires were completed and the marketing replies were comments that the CPD did not apply to their product and their company respectively.

It is apparent that the original proposal of a single Technical questionnaire would have been preferable.

4.0 Survey Analysis

The self-completion postal questionnaire took place over the month of December 1999 and a follow up period in January 2000. The survey asked questions on the following four areas:

- Awareness of the CPD
- Technical Involvement
- Market Sector
- Company details

4.1 Response Rate

From the six product groups a total of 214 firms were used as the sample. 109 replies were received from a total of 428 questionnaires posted, which gives a **25%** return rate, 12 questionnaires were returned due to firms either no longer trading or resident at the address. Postal surveys in general have a low response rate (Al-Ghamdi, 1998) and the construction industry has a particularly poor attitude to research and this can be seen in response rates to surveys within the construction industry ranging between 20% to 35% (Hall and Jaggar, 1998; Kululanga *et al*, 1998; Proverbs *et al*, 1999).

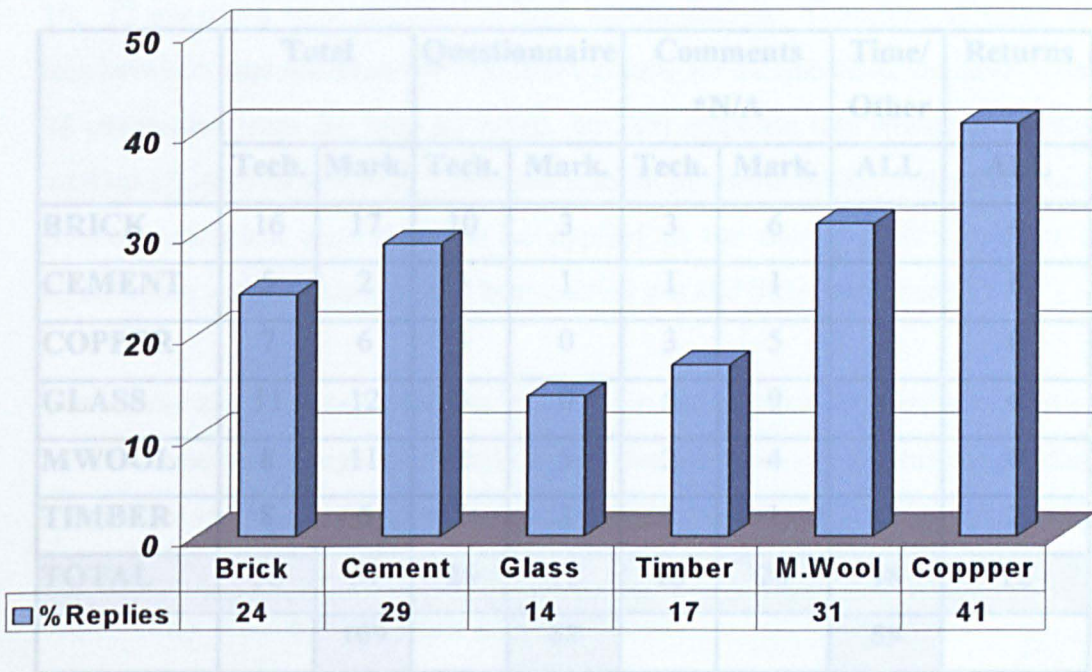
If we consider the fact that most firms only answered 1 of the 2 questionnaires due to confusion between the marketing and technical questionnaires and consider a single reply from each firm surveyed (not including returns), the effective response rate is **46%**.

Table 3: Total Replies Received and the Percentage of the Total Replies

	TOTAL	Brick	Cement	Glass	B. Wood	M.Wool	Copper	Returns
No. Sent Out	428	120	24	120	70	62	32	
No. Replies	109	29	7	17	12	19	13	12
% Replies	25	27	6	16	11	17	12	11

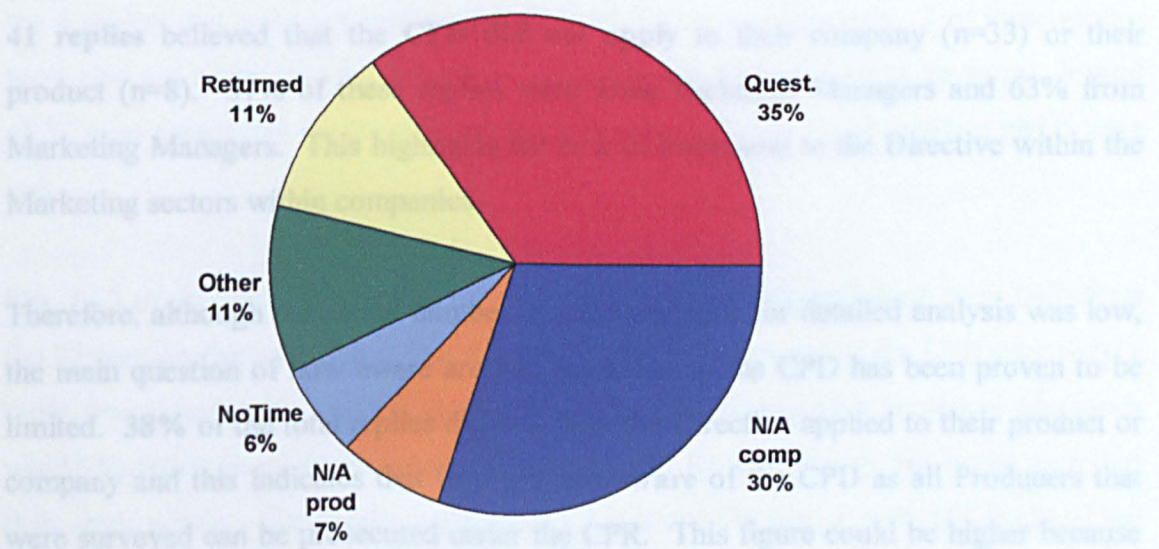
Table 3 shows the replies, both questionnaire and comments, for each product group representative of the total replies received. The following chart shows a clearer picture of the reply rate for each product group.

Figure 10: % Replies for Each Product Group



The largest response rate was 41% from the copper pipes and fittings manufacturers, but only 9% were questionnaire replies. Of the comments that were received 80% replied that the Directive did not apply to their product (n=1) or company (n=7).

Figure 11: Total Breakdown of Replies



It can be clearly seen that only 35% of the replies were actual questionnaires and 54% of the replies were comments. The table below further breaks down the replies into Technical and Marketing.

Table 4: Breakdown of Technical and Marketing Replies for the Product Groups

	Total		Questionnaire		Comments *N/A		Time/ Other	Returns
	Tech.	Mark.	Tech.	Mark.	Tech.	Mark.	ALL	ALL
BRICK	16	17	10	3	3	6	7	4
CEMENT	5	2	3	1	1	1	1	0
COPPER	7	6	3	0	3	5	2	0
GLASS	11	12	3	0	5	9	0	6
MWOOL	8	11	2	5	2	4	6	0
TIMBER	8	6	5	3	1	1	2	2
TOTAL	55	54	26	12	15	26	18	12
		109		38			59	

*N/A Comments = Does Not Apply to company or Product

59 replies were comments and not completed questionnaires. The proportion of replies between technical and marketing are virtually identical, 55 and 54 respectively but the proportion of Do Not Apply comments increases 1:2 technical to marketing. A total of **41 replies** believed that the **CPD did not apply** to their company (n=33) or their product (n=8). 37% of these replies were from Technical Managers and 63% from Marketing Managers. This highlights the lack of awareness to the Directive within the Marketing sectors within companies.

Therefore, although the actual number of questionnaires for detailed analysis was low, the main question of how aware are UK producers to the CPD has been proven to be limited. **38%** of the total replies did not think the Directive applied to their product or company and this indicates that they **are not aware** of the CPD as all Producers that were surveyed can be prosecuted under the CPR. This figure could be higher because

some of the non-responses could also be due to lack of awareness to the Directive and therefore the perceived relevance of the survey.

4.2 Questionnaire Results

The Technical questionnaire consisted of 18 questions and the Marketing questionnaire 16. 12 questions were common to both questionnaires. Therefore although the reply rate between total questionnaires sent out is low, for 12 questions we have replies from 38 companies from the total surveyed, an 18% response rate compared to 9% of the total questionnaires sent out. The small amount of questionnaire replies has reduced the possible statistical tests that can be applied to the data. Where possible tests of significance and association have been carried out and inferences made.

The results are presented question by question and comparisons are made between the technical and marketing replies and also between the two groups that the products were categorised in. The Light group comprises of the copper pipe and fittings, mineral wool insulation and builders woodwork producers and the Heavy group of the Portland cement, clay brick and laminated glass producers.

To determine the rank two criteria were applied, first the mean and second the % of responses falling within the categories of Quite a lot and A great Deal.

4.2.1 Section 1: European Awareness

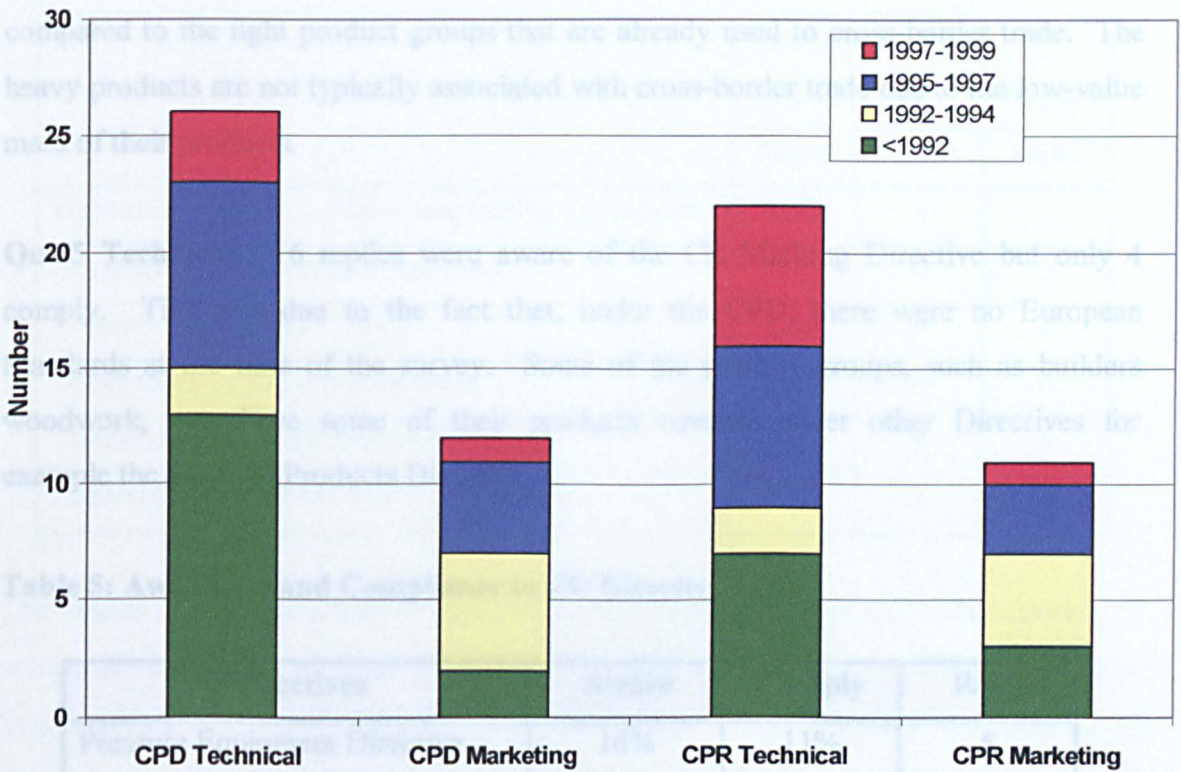
Qu. 1. 34 replies answered that they were aware of the measures to create the SEM and the 4 replies that were not aware were all from Technical Managers. 2 of these replies were also not aware that the breakdown of barriers to trade is a SEM measure. A total of 32 were aware that the breakdown of barriers to trade is a SEM measure and 6 were not.

Qu. 2. 2 of the Technical replies were not aware of the CPD and these were both from the Timber product group and this increased to 6 on awareness of the CPR with only 1 reply from Marketing, mineral wool group. It was believed that Technical Managers would be more likely to be aware of the technical Regulations as this is the area that they work within. The results indicate that this is not the case as only 8% (n=1) of the

marketing replies were not aware of the CPR compared to 19% (n=5) of the technical replies.

Qu. 3. There were two distinct periods of awareness of the CPD and the CPR for the technical replies, before 1992 and between 1995 and 1997.

Figure 12: Awareness to the CPD and the CPR



For marketing the periods from 1992 to 1997 were where awareness to the CPD and CPR are most present. Only the mineral wool producers for the marketing replies were aware of the CPD before 1992. This could be because mineral wool producers are affected by national environmental Regulations, especially in Germany and those producers who were already exporting their product would be aware of the CPD because of its aim to harmonise standards and conformity procedures in the environment and health and hygiene areas (Borthwick, 1994c). The results also highlight the poor awareness of the CPR. This is the legislation that producers will be prosecuted under, not the CPD itself and it has been in place since 1991 yet only 12 companies were aware of the CPD before 1992 and only 10 were aware of the CPR.

Qu. 4. 78% (n=28) expected there to be ‘little or no’ effect on their domestic market due to the CPD and 56% (n=20) in the EU markets and this was similar for light and heavy groups, 75% to 70% in the domestic market and 67% and 68% for the EU markets. The results were very different for ‘quite to a great deal’ of effect with 12% for the light group and 25% for the heavy group in the domestic market. The results were the same for the EU market with the heavy group recording 53% compared to 27% for the light group. These results suggest that the producers of brick, cement and glass, the heavy group are more concerned with the impact of increased cross-border trade compared to the light product groups that are already used to cross-border trade. The heavy products are not typically associated with cross-border trade due to the low-value mass of their products.

Qu. 5 Technical. 16 replies were aware of the CE Marking Directive but only 4 comply. This was due to the fact that, under the CPD, there were no European Standards at the time of the survey. Some of the product groups, such as builders woodwork, may have some of their products covered under other Directives for example the Biocidal Products Directive.

Table 5: Awareness and Compliance to EU Directives

Directives	Aware	Comply	Rank
Pressure Equipment Directive	16%	11%	5
Electromagnetic Compatibility Directive	5%	0	8
Hot Water Boilers Directive	3%	3%	7
Machinery Directive	24%	13%	4
General Product Safety Directive	21%	18%	3
Packaging and Packaging Waste Directive	34%	21%	1
CE Marking Directive	42%	11%	2
Others	5%	3%	6

Qu. 5 Marketing. The Marketing Managers were surveyed on the importance of the removal of certain barriers of trade to their product and markets. The barriers used vary

in their degree of implementation and this was seen in the results. The question was devised to compare the results with the EC Report into the Cost of Non-Europe that estimated the expected benefits of the SEM on building products (BIPE, 1986). The results have been compared to see if there have been any changes since the SEM measures have been in place for over 10 years.

Table 6: Ranked Importance of Removal of Certain Trade Barriers

	Questionnaire Marketing		EU Report
	Mean	Rank	Rank
Harmonisation of standards and testing procedures	1.92	1	1
Administrative Barriers (Customs)	1.27	6	3
Frontier Delays and Costs	1.45	3=	4
Differences in VAT, excise taxes	1.45	3=	6
Transport Market Restrictions	1.36	5	5
Implementation of EC law	1.45	2	2

The results clearly show that Producers are still concerned over the harmonisation of standards and the fact that this factor is still ranked top is due to its slow implementation. The Spearman Rank Correlation Coefficient test was applied to examine the association between the survey results and the Cost of Non-Europe Report and show little correlation between the two ($\rho = 0.443$). The factors that have the most difference in rank, differences in administrative barriers and taxes, may be attributed to the present economic climate that Producers have to work within rather than national government restrictions. There having recently been delays at borders due to blockades and also the implications of the UK not being involved in the Euro affect Producers at present and may have influenced their replies.

A recent DETR report into the UK building materials sector surveyed construction products trade associations and large consultants and contractors from the supply side of the construction industry on their perceptions on issues affecting building materials (Davis Langdon & Everest, 2000). Harmonisation of standards was not involved in the

survey and highlights the problem of the full awareness of the implications that harmonised standards will have on the construction industry as a whole. The report does highlight the fact that the trade associations raised the issue of standardisation and the impact of European Standards, yet this is a report by the DETR and the issue was not directly raised. The issues that are tested in this report will be used for further detailed discussions in the case study interviews with brick manufacturers and to compare any results.

4.2.2 Section 2: The Construction Products Directive

Qu. 6. 69% (n=18) of the 26 technical replies were involved with the implementation of the Directive.

Table 7: Involvement with Standards Committees and Trade Organisations

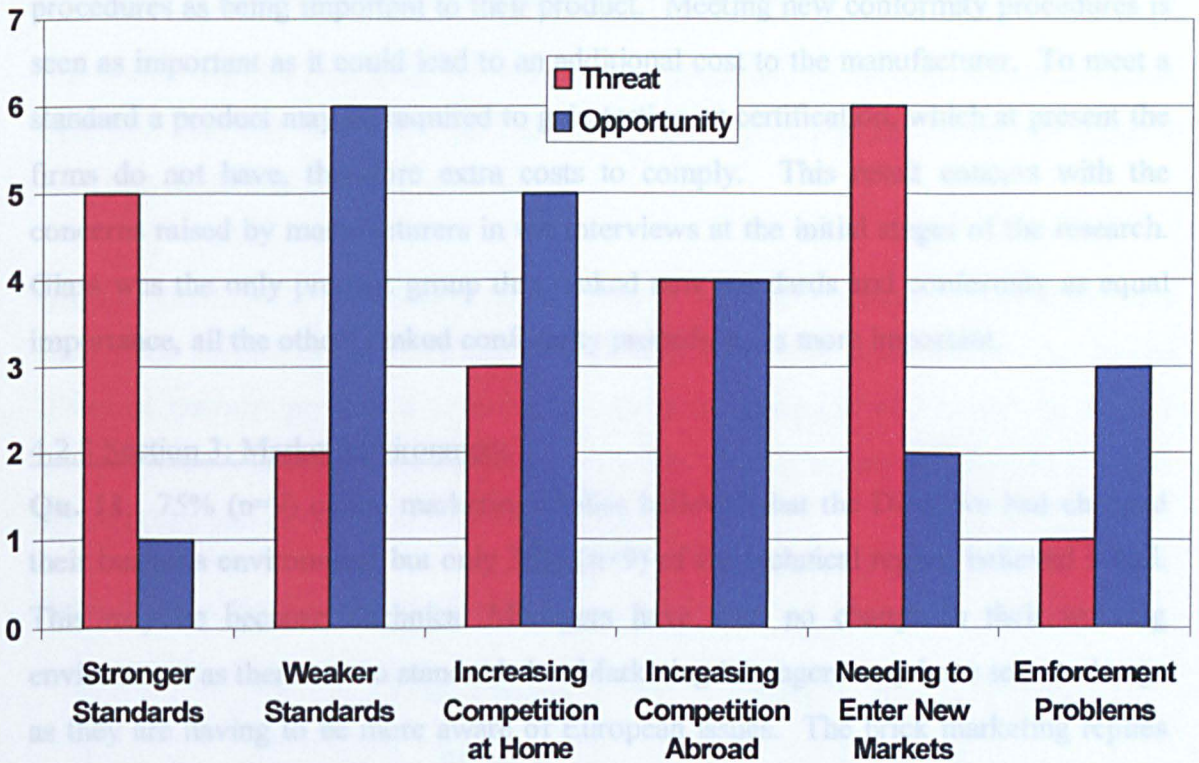
	Number Involved	% of Sample
British Technical Standards Committees	14	54
European Technical Standards Committees	16	62
British Trade Organisations	16	62
European Trade Organisations	9	35

This shows a high level of commitment by Technical Managers to the standards process with the majority of the replies being involved with more than one of the above. Without this involvement the EN could differ significantly to British Standards. This could lead to major financial implications for the manufacturers, having to change their existing production systems and even their products to meet the new EN. This result coincides with the high ranking by Technical Managers to cost investment in Standards Committees.

Qu. 8 and 9. The Technical Managers replied that the highest threat by the Directive was with enforcement yet they also ranked it 3rd as an opportunity. Weaker standards were seen as the next threat and this linked in with the concerns over enforcement. The producers concern with enforcement concurs with the results of the exploratory interviews in the early stage of the research (Borthwick, 1994b). Producers fear that the

opening up of markets and the affixing of the CE Marking would lead to sub-standard products being imported into the UK at a cheaper price than they could manufacture their products. The producers were worried that the enforcing bodies in the UK, namely the Trading Standards Offices would not be able to cope, through lack of knowledge of each individual product and lack of resources with the perceived increase in cheaper products.

Figure 13: Rank Opportunity and Threats



The Spearman Rank Correlation Coefficient was applied to the results and shows a strong negative correlation ($\rho = -0.873$). That is to say that the Producers have ranked a category high as an opportunity and low as a threat and vice-a-versa. Stronger standards were seen as the highest opportunity and conversely ranked 5th as a threat. This is because British Standards (BS) are seen to be comprehensive and as most companies already comply with BS they did not see stronger standards as a threat but an opportunity. This is also evident with weaker standards ranked 6th as an opportunity.

Cement ranked increasing competition abroad as their biggest threat compared to all the other product groups that ranked enforcement as top. All, except mineral wool, ranked weaker standards as the second largest threat, mineral wool ranked increasing competition at home.

Qu. 10. 80% (n=20) foresee European Standards and European Technical Approvals of having some degree of importance on their products, with half of them seeing it as being 'quite a lot' or 'a great deal'. Testing was rated slightly more important than new EN and ETA with only 3% (n=3) replying that they did not see new conformity procedures as being important to their product. Meeting new conformity procedures is seen as important as it could lead to an additional cost to the manufacturer. To meet a standard a product may be required to gain testing or certification, which at present the firms do not have, therefore extra costs to comply. This result concurs with the concerns raised by manufacturers in the interviews at the initial stages of the research. Glass was the only product group that ranked new standards and conformity as equal importance, all the others ranked conformity procedures as more important.

4.2.3 Section 3: Market Environment

Qu. 11. 75% (n=9) of the marketing replies believed that the Directive had changed their business environment but only 35% (n=9) of the technical replies believed it had. This may be because Technical Managers have seen no change to their working environment as there are no standards but Marketing Managers may have seen a change as they are having to be more aware of European issues. The brick marketing replies saw the least amount of change to their business environment (67% none at all), compared to cement (100%), mineral wool (40%) and builders woodwork (33%) that saw a great deal of change to their business environment due to the Directive. This may be because of the traditional nature of the brick and the variation of use within regions and countries.

Qu. 12. Only 7 of the 38 replies believed that the Directive had made a change to their market strategy and 3 replied that they only changed the strategy because of the Directive, 1 brick technical reply and 2 builders woodwork marketing replies.

Qu. 13. The following table shows the markets that the respondents were involved in.

Table 8: Markets and Dates Involved

	Before 1992	1992 - 1999
UK	36	38
EU	24	28
EFTA	8	12
Rest of Europe	12	17
Others	11	14

The Middle and Far East were the other markets identified by the respondents and glass were also involved with USA and Canada. Marketing replies for cement and mineral wool also identified the USA and Canada.

Qu. 14. 20 of the 38 replies were not planning to enter new markets. Technical replies from brick producers were the only ones looking to enter new markets due to the Directive through product innovation in new home markets, EFTA and the rest of Europe. Only 1 mineral wool marketing reply was looking at new home markets due to the Directive and its threat on traditional markets.

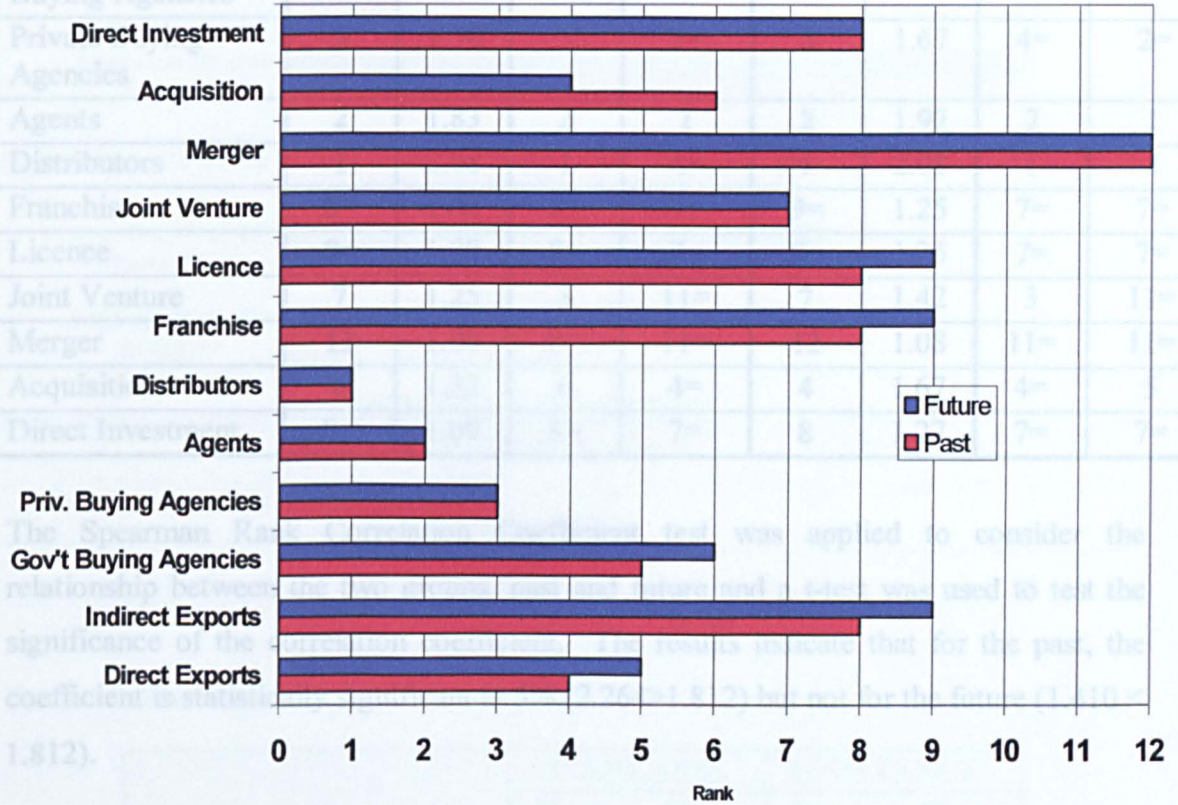
Table 9: New Markets for the Future

	New Home Markets	EU	EFTA	Rest of Europe	Others
Due to the Directive	2	0	1	1	0
Due to Single European Market	0	1	1	1	1
Other reasons	9	2	1	3	4

The main other reason for entering into new markets can be categorised as economic or commercial. Replies identified protecting home markets by developing new product lines and entering new markets with existing products to increase market share.

Qu. 10 Marketing. Distributors were ranked as the top method of market entry both in the past and for the future. Agents and then private buying agencies were second and third respectively.

Figure 14: Rank Market Entry Options Past and Present



Comparing the light and heavy groups show that the light group rank Distributors as top for past and future and Agents are ranked first for the heavy group, past and future. The major difference between the two groups is with the use of Joint Ventures, ranked 3rd for the light group and 11th for the heavy group for both past and future. This is due to the nature of the products and also the size of the companies involved within the two groups. The larger companies tend to be in the heavy group and are less likely to use joint ventures as a method to enter new markets. Merger was ranked lowest for both past and in the future. No other entry strategies were identified by the respondents as possibly being used in the future.

Qu. 12 Marketing.

Market research was ranked top for both awareness and assistance as a tool when considering to enter new markets. Seminars by the DTI and the DETR (formerly the DOE) were ranked second for both assistance and for awareness and other government

Table10: Rank for Past and Future Market Entry Strategies

	PAST				FUTURE			
	Rank	Mean	Light	Heavy	Rank	Mean	Light	Heavy
Export - Direct	4	1.50	4	4=	5	1.58	6	6
Export - Indirect	8=	1.08	8=	7=	9=	1.25	7=	7=
Government Buying Agencies	5	1.42	6	2=	6	1.42	11=	2=
Private Buying Agencies	3	1.50	5	2=	3	1.67	4=	2=
Agents	2	1.83	2	1	2	1.92	2	1
Distributors	1	2.08	1	4=	1	2.08	1	4
Franchise	8=	1.08	8=	7=	9=	1.25	7=	7=
Licence	8=	1.08	8=	7=	9=	1.25	7=	7=
Joint Venture	7	1.25	3	11=	7	1.42	3	11=
Merger	12	1.00	8=	11=	12	1.08	11=	11=
Acquisition	6	1.33	6	4=	4	1.67	4=	5
Direct Investment	8=	1.09	8=	7=	8	1.27	7=	7=

The Spearman Rank Correlation Coefficient test was applied to consider the relationship between the two groups, past and future and a t-test was used to test the significance of the correlation coefficient. The results indicate that for the past, the coefficient is statistically significant at 5% ($2.264 > 1.812$) but not for the future ($1.410 < 1.812$).

The results suggest that for the future market entry strategies there is a change compared to the past strategies used by the light group. These occur in the use of government buying agencies and mergers. This could be a reflection on what has already occurred within their markets, such as restructuring having already taken place. Restructuring would lead to fewer medium size firms and more larger multi-nationals. This would therefore imply less opportunity and need for mergers and also less need to use government buying agencies if the past acquisitions have been with European manufacturers.

Qu. 12 Marketing.

Market research was ranked top for both awareness and assistance as a tool when considering to enter new markets. Seminars by the DTI and the DETR (formerly the DOE) were ranked second for both assistance and for awareness and other government

Trade visits and initiatives were also ranked highly. More surprising were the non-replies. 10 replies did not fill in this question due to either not working in foreign markets or looking to enter new markets.

Figure 15: Rank Awareness and Assistance

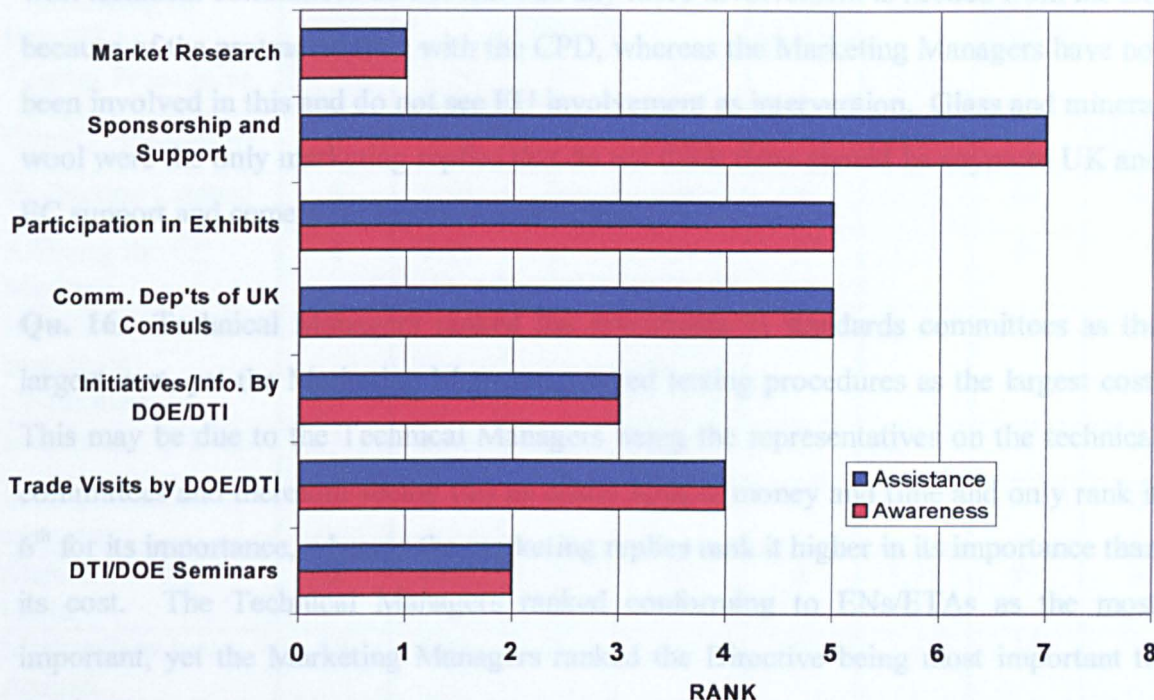


Table 11: Rank Awareness and Assistance

	AWARENESS		ASSISTANCE	
	Rank	Mean	Rank	Mean
DTI/DOE Seminars	2=	2.00	2=	1.75
Trade Visits by DOE/DTI	4	1.80	2=	1.75
Initiatives/Info. by DOE/DTI	5=	1.75	4=	1.67
Commercial Dep'ts of UK Consulates and Embassies	5=	1.75	4=	1.67
Participation in Exhibits	2=	2.00	4=	1.67
Sponsorships and Support for attending visits	7	1.67	7	1.33
Market Research	1	2.50	1	2.25

The Spearman Rank Correlation Coefficient test was applied to consider the relationship between awareness and assistance and a t-test was used to test the significance of the correlation coefficient. The result indicates that the coefficient is statistically significant at 1% ($3.650 > 3.365$).

Qu. 15. Both the marketing and technical replies concur with the amount of support from the UK and the EU. 64% of the technical replies and 63% of the marketing replies believe they should have more UK support and 62% and 75% respectively, for more EU support. This difference could be because the Technical Managers who are involved with technical committees do not feel that any more involvement is needed from the EU because of the protracted time with the CPD, whereas the Marketing Managers have not been involved in this and do not see EU involvement as intervention. Glass and mineral wool were the only marketing replies that do not think there should be anymore UK and EC support and cement for the technical replies.

Qu. 16. Technical Managers ranked the investment in standards committees as the largest cost, yet the Marketing Managers ranked testing procedures as the largest cost. This may be due to the Technical Managers being the representatives on the technical committees and therefore seeing this as costly both in money and time and only rank it 6th for its importance, whereas the marketing replies rank it higher in its importance than its cost. The Technical Managers ranked conforming to ENs/ETAs as the most important, yet the Marketing Managers ranked the Directive being most important to QA issues.

Figure 16: Rank Importance and Cost

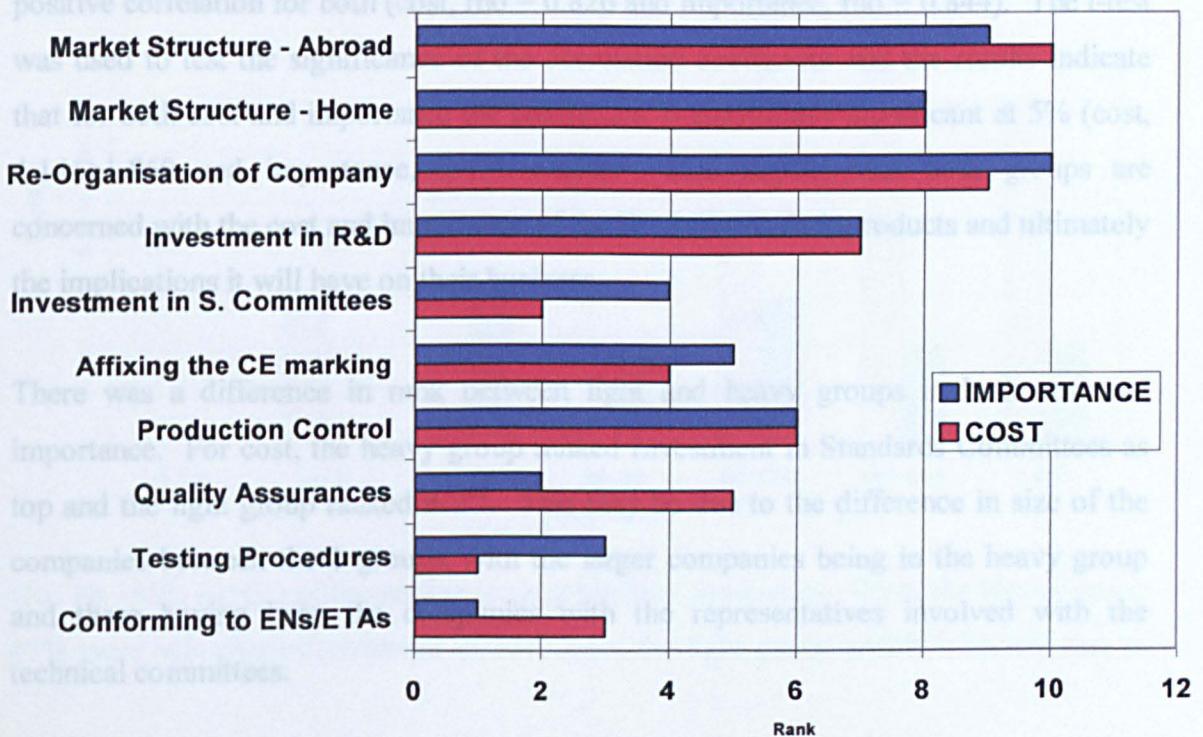


Table 12: Rank Cost and Importance

	COST				IMPORTANCE			
	Rank	Mean	Light	Heavy	Rank	Mean	Light	Heavy
Conforming to ENs/ETAs	3	2.18	1	4=	1	2.71	1	3
Testing Procedures	1	2.29	2=	2=	3	2.53	5	2
Quality Assurances	5	2.06	4	4=	2	2.68	2	1
Production Control	6	1.91	7=	6=	6	2.24	6=	6=
Affixing the CE Marking	4	2.15	5=	2=	5	2.35	6=	5
Investment in Standards Committees	2	2.29	2=	1	4	2.44	3	4
Investment in R&D	7	1.88	5=	6=	7	2.12	4	6=
Re-organisation of company	9	1.47	7=	6=	10	1.47	8=	8=
Market Structure - Home	8	1.56	7=	6=	8	1.71	8=	8=
Market Structure - Abroad	10	1.44	7=	6=	9	1.50	10	8=

The Spearman Rank Correlation Coefficient test was applied to examine the association between the two groups for both cost and importance and the results indicate strong positive correlation for both (cost, $\rho = 0.826$ and importance, $\rho = 0.844$). The t-test was used to test the significance of the correlation coefficient and the results indicate that for both cost and importance the coefficient is statistically significant at 5% (cost, $4.141 > 1.860$ and importance, $4.450 > 1.860$). This implies that both groups are concerned with the cost and importance of the Directive to their products and ultimately the implications it will have on their business.

There was a difference in rank between light and heavy groups in both cost and importance. For cost, the heavy group ranked Investment in Standards Committees as top and the light group ranked it 2nd. This may be due to the difference in size of the companies between the 2 groups, with the larger companies being in the heavy group and these having been the companies with the representatives involved with the technical committees.

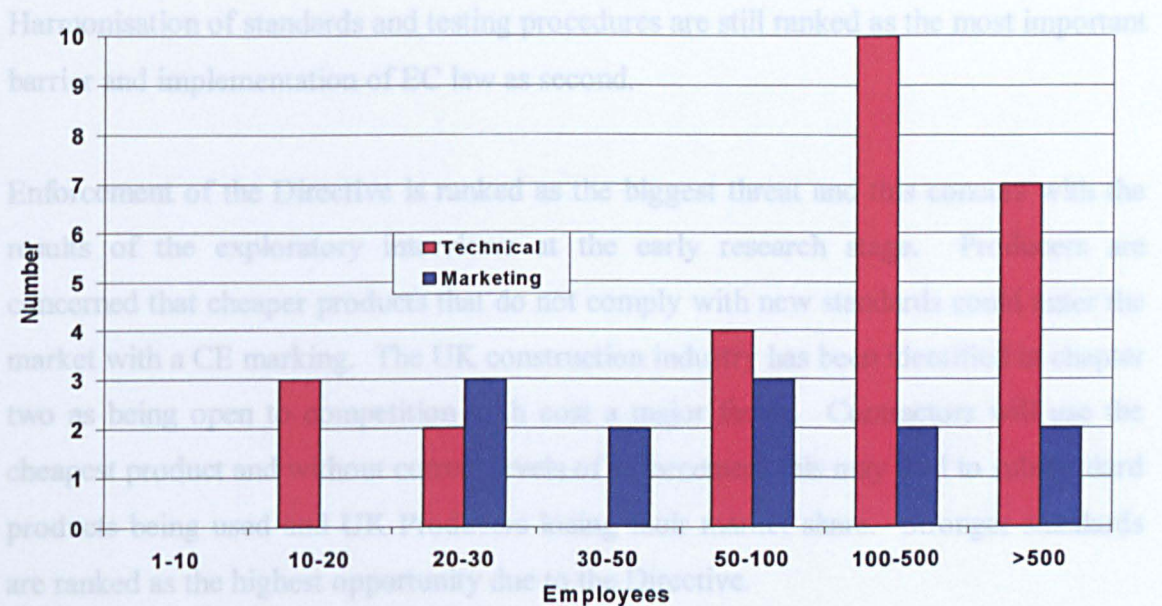
The light group ranked Conforming to ENs and ETAs as top for importance but the heavy group ranked Quality Assurance as top. This difference could be due to the large involvement of the heavy group with standards committees that has meant that the draft standards resemble British Standards quite closely and therefore the costs should be minimal in conforming to ENs.

4.2.4 Section 4: Background Information

Qu. 17. 76% (n=28) of the replies were from 50 plus employers, this could be because smaller companies are not aware or do not fully understand the Directive.

65% of the replies for the Heavy group were from companies who employ 100 plus people compared to only 33% from the Light group. This also relates to the involvement in technical standards committees and trade organisations. The larger company can afford to invest the man hours in the technical committees and see it as a means of ensuring that the new EN will be as similar as is possible to the current BS for their product. Smaller firms cannot afford to lose a member of staff to all the various committees and they must rely on the trade association as their representative.

Figure 17: Size of Respondents



Qu. 18. 55% (n=21) of the replies were subsidiary companies. From the Heavy group 47% were subsidiaries compared to 67% from the light group which is mainly due to

the Heavy group comprising of more larger firms than the Light group in this survey and therefore less likely to be part of a group.

5.0 Conclusions

The questionnaire results lead us to conclude that, at the time of the survey, a high proportion of UK manufacturers were not aware of the CPD, 43 replies, and even more unaware of the CPR, 47 replies. The high return rate of comments led to a low rate of questionnaire replies. The results could also have been improved by having the single questionnaire and not two separate questionnaires on marketing and technical questions. The low questionnaire reply rate and the results for questions 1 and 2, concur with the view of Heberlein and Baumgartner (1978) that those that have an interest or knowledge of the survey topic, are more likely to reply. 89% of the respondents have some knowledge of the SEM measures and 95% are aware of the CPD. It also strengthens the conclusion that UK construction Product Manufacturers are not aware of the CPD because the low response rate could be due to lack of knowledge of the subject.

The ranked importance of the removal of certain barriers to trade identified in the EC Report into the benefits of the SEM has not changed over the last ten years. Harmonisation of standards and testing procedures are still ranked as the most important barrier and implementation of EC law as second.

Enforcement of the Directive is ranked as the biggest threat and this concurs with the results of the exploratory interviews at the early research stage. Producers are concerned that cheaper products that do not comply with new standards could enter the market with a CE marking. The UK construction industry has been identified in chapter two as being open to competition with cost a major factor. Contractors will use the cheapest product and without correct levels of enforcement this may lead to substandard products being used and UK Producers losing their market share. Stronger standards are ranked as the highest opportunity due to the Directive.

The major difference between the Light and Heavy groups replies are due to the size of the Producers within the Heavy group that obviously influence their replies, 65% with 100 plus employees.

The questionnaire survey results were used to develop the areas to be investigated in the Case Study interviews such as the market entry options specific to a particular industry and the involvement of the trade associations within that industry. The manufacturers awareness of the Directive will be considered in more detail investigating specific areas of the Directive and their perceived impact on the European brick standard. The next chapter examines the UK brick industry and details the Case Study interviews.

CHAPTER EIGHT

PART ONE

THE UK BRICK INDUSTRY

1.0 Introduction to Chapter Eight

This chapter is divided into two parts, the first introduces the UK brick industry and the second examines the interviews and presents the results. The series of interviews from a representative sample of manufacturers and all relevant trade organisations have been used to further test the hypothesis and to analyse the industry and develop a profile of the UK brick industry.

First, it is important to identify the criteria for using the brick industry for the case study. Chapter two identified the importance of the materials sector to the construction industry and the brick is a major component in a construction project, especially in housing. The criteria applied for using the brick manufacturers in the questionnaire also applies to the case study and can be defined further into two categories, location and industry implications:

1. Location

- The manufacturer of bricks is tied to the location of the raw materials and cannot be located near markets or transport systems. Most brick plants are on the original sites of plants started in the 1800s.
- Brick is also generally considered as non-tradable because of its low value to mass.

2. Industry implications

- Brick is a major construction material with a high volume content in the majority of construction projects, especially housing.
- Brick production involves high capital investment and a long lead in time if setting up a new plant.

These criteria can be related to market entry theory as identified in chapter five. The CPD is one piece of European legislation aimed at removing barriers to trade and by using the brick industry with the above characteristics, the impact of the Directive can be tested as to its importance to the industry and strategic decisions to market position, the research hypothesis. The brick industry was also chosen because of the researchers interest in the industry and the links already formed with manufacturers.

2.0 Introduction to Part One

Part One identifies the developments and characteristics of the UK brick industry. Production materials and processes will be detailed to explain the characteristics that make the brick industry different from other manufacturing sectors and therefore one of the reasons for being used as a case study.

3.0 The UK Brick Industry

3.1 Introduction

Bricks have been made and used as a building material around the world for thousands of years and are probably the oldest industrialised building material known to man. Bricks have been found dating back to 8000 BC in the remains of Jericho and there are some impressive structures made from brick still standing, such as the Ziggurat temples, the largest being the Elamite at Choga Zambil, Iran dated around 1300BC. The earliest bricks, known as adobes, were made from clay taken from near the surface of the ground, or riverbanks, moulded into shape by hand and dried in the sun. The word brick came into common usage in the 15th Century, before that the blocks of clay used for building were called waltyles.

Brickmaking expanded rapidly in the late 18th Century, as bricks were needed for lock and bridge construction as well as for industrial buildings and houses. The 19th Century expansion of the coalfields caused a dramatic growth in the brick industry. Brick clay was mined along with coal and unsaleable slack coal was used as a cheap fuel for the kilns. Many colliery companies set up brick and tile works. By the middle of the 19th Century brick production was at its peak, supplying the bricks for the industrial revolution, factories and the expansion of the railway and canal networks.

3.2 The Brick

A brick is a small masonry-building unit, commonly a rectangular block, solid or cored not in excess of 25% with dimensions not exceeding 338mm in length, 225mm in width and 113mm in height (BS 3921: 1985). Larger masonry units are known as blocks.

There are two categories of brick:

1. Clay burned or fired to hardness. This group represents a major branch of the ceramics industry and includes bricks such as commons and facings.
2. Cementitious materials that harden by chemical action. This includes the sand-lime and cement brick.

This study is only concerned with the first category, clay bricks. Most UK bricks are made from clay, but the wide variation in mineral content of clay from one locality to another provides bricks with a range of colours, textures and physical characteristics.

3.3 Clay Types

There are two main ingredients that give clay its huge range of colours, lime and iron. Iron gives reds, blues and darker colours and lime bleaches out most colours to give buff type bricks. Stewart (1987) highlighted the general 'North and South divide' in clay types. The South tends to produce more absorbent bricks with a high proportion of buffs and the harder northern clays tend to have a high iron content that produce denser, harder and smoother reds.

Brick clays are relatively soft sedimentary rocks such as clays, shales, mudstones and marls. Clays are classed as a plastic material but for production purposes clay must be crushed, grinded and mixed with water to improve plasticity. There is a wide range of brick clays available in the UK and it depends on the location as to the clay used in production, for example Keuper and Etruria Marls are found in the Midlands and Boulder Clay in North England.

Virtually all brick companies have their own supply of clay, often at several sites. There are also outside companies that supply clay to the brick and tile industry. Access to suitable raw material is an important consideration as companies buy out competitors or swap activities in this area.

Historically, brick factories were located on sites where suitable clay was present, resulting in a broad geographical distribution of brickworks that can still be traced today. Figure 18 shows the regional production of common clay and shale by its end

use. It clearly shows the areas that are predominantly concerned with brick manufacture.

Bricks were made and consumed within a limited locality until the introduction of canals and railways. This reduced the costs and improved the logistics of transporting finished products over long distances. As more cost-effective methods of transport were developed, it became feasible to distribute bricks over much wider areas and this resulted in minor local brickworks closing. The brickworks with greater clay deposits and superior rail or other transport links to major construction centres prospered and expanded.

This use of locally produced bricks, is today an advantage for the smaller Brickmaker who can capitalize on projects with planning restrictions limiting the use of materials, especially in areas of English Heritage.

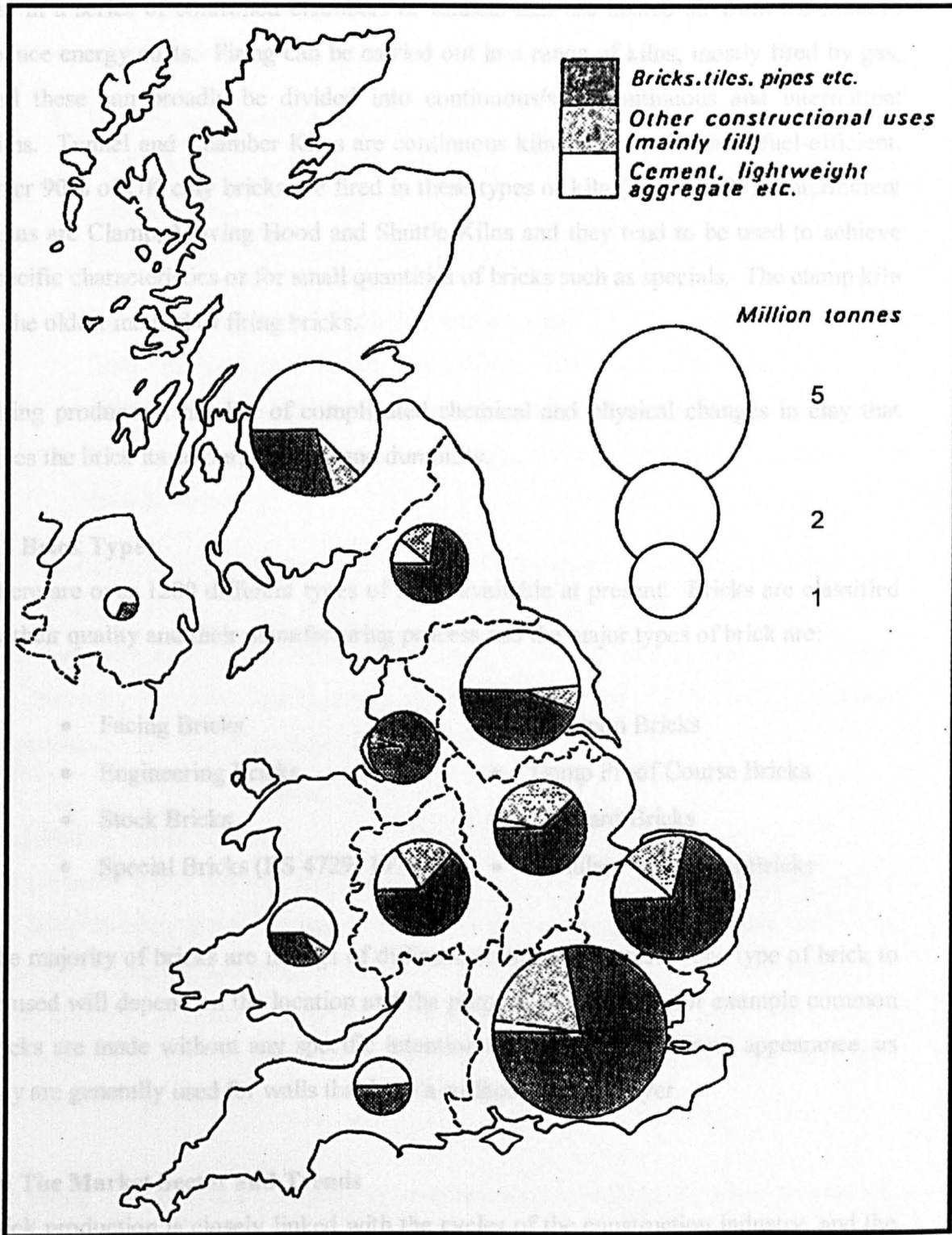
The texture differences that brick have are not due to the clay type but the different methods of production. The softer clays of the south have traditionally been pressed or hand thrown and the harder clays of the North tend to be extruded and these production methods are detailed in the next section.

3.4 Brick Production Processes

The majority of bricks are now produced by automated processing and firing equipment, but there is still a business in handmade bricks to suit specialised market niches.

First the clay is prepared for shaping by passing it through a series of machines that mix it so it is consistent in content, grading, plasticity and water content. The clay is then shaped and there are three main categories of forming used in the UK: soft mud moulding by hand or machine, extrusion / wirecut and semi-dry pressing. Soft Mud Moulding is the traditional handmaking process for stock bricks. Machines are also used and can produce up to 22,000 stock bricks per hour. Extrusion / Wirecut accounts for approximately 40% of UK production and one die can produce 20,000 bricks an hour (BDA, 1993). Semi-dry Pressing refers to the workability of the clay and is used for Fletton bricks.

Figure 18: Geographical Production of Common Clay and Shale by its End Use



Source: Ridgeway, J. M., 1980, *Common Clay and Shale*. Mineral Dossier No. 22.

Before firing the bricks are dried to ensure that the bricks are hard enough to be stacked for firing and to control the shrinkage process and prevent cracking. Drying is carried out in a series of controlled chambers or tunnels that use heated air from the kilns to reduce energy costs. Firing can be carried out in a range of kilns, mostly fired by gas, and these can broadly be divided into continuous/semi-continuous and intermittent kilns. Tunnel and Chamber Kilns are continuous kilns and are the most fuel-efficient. Over 90% of UK clay bricks are fired in these types of kiln (BDA, 1993). Intermittent Kilns are Clamp, Moving Hood and Shuttle Kilns and they tend to be used to achieve specific characteristics or for small quantities of bricks such as specials. The clamp kiln is the oldest method of firing bricks.

Firing produces a number of complicated chemical and physical changes in clay that gives the brick its colour, strength and durability.

3.5 Brick Types

There are over 1200 different types of brick available at present. Bricks are classified by their quality and their manufacturing process and the major types of brick are:

- Facing Bricks
- Engineering Bricks
- Stock Bricks
- Special Bricks (BS 4729: 1971)
- Common Bricks
- Damp Proof Course Bricks
- Standard Bricks
- Cellular / Perforated Bricks

The majority of bricks are facings of different colour and texture. The type of brick to be used will depend on the location and the purpose of the brick, for example common bricks are made without any specific intention to produce a consistent appearance, as they are generally used for walls that have a surface finishing layer.

3.6 The Market Sector and Trends

Brick production is closely linked with the cycles of the construction industry, and the brick industry regularly swings between the extremes of overproduction and contraction. Recently brick manufacturers have expanded into the landscaping market

with the increase in the use of block pavers, but construction still remains their main market.

The demand for brick is determined by two main factors:

1. Designs and trends in construction

In the housing sector, brick retains its position as the most important outer material. Concrete blocks and alternative building units are now widely used for the internal structure, but brick external walls are still popular.

2. Volume of building work being undertaken

Brick demand has varied considerably since the sharp decline in the construction industry that followed the peak of the late 1980s. There have been upturns in consumption since then, but also periods of flat demand or even downturn.

This erratic demand for bricks has brought about changes in the brick industry both in the UK and Europe. Many brickworks have closed and there have been numerous takeovers, with some of the former well-known company names such as London Brick and Butterley becoming brand names of their new owners. This trend in industry rationalisation has also occurred in Europe.

3.6.1 Market Concentration

The materials sector has seen and is still continuing to see market concentration and the UK brick industry is no different. Market concentration either by closure of, mainly small manufacturers, and mergers and takeovers are due to high price competition in the brick industry, increase in production costs due to legislation and because of the fluctuating demand of the construction industry due to the 'bust-boom' economic cycles in construction productivity.

The swing from insufficient capacity to overcapacity, destocking and plant closures has caused some well-known companies to exchange their brickmaking facilities or to be taken over by larger companies. To be successful in this mature market, manufacturers have to make major investments to achieve ever more cost-effective methods of manufacturing, stocking and distributing products.

Ibstock and Hanson control approximately 60% of the UK market, Baggeridge Brick, Marshalls and Chelwood Brick control a further 20-25%. The remaining 10-15% is shared between approximately 15 smaller companies and a further 10-15 very small brick manufacturers (Borthwick, 2001). The smaller companies offer a specialized product to a niche market and are not aimed at the mass-producing house market but more towards conservation, renovation and single projects.

As well as concentration, the industry is becoming more European. Ibstock is now owned by the Irish company CRH plc and Hanson plc renamed its brick activities to Hanson Brick Europe, this comprises of its UK and Belgium factories.

Table 13: Market Activity of the Top 5 UK Manufacturers in 2000

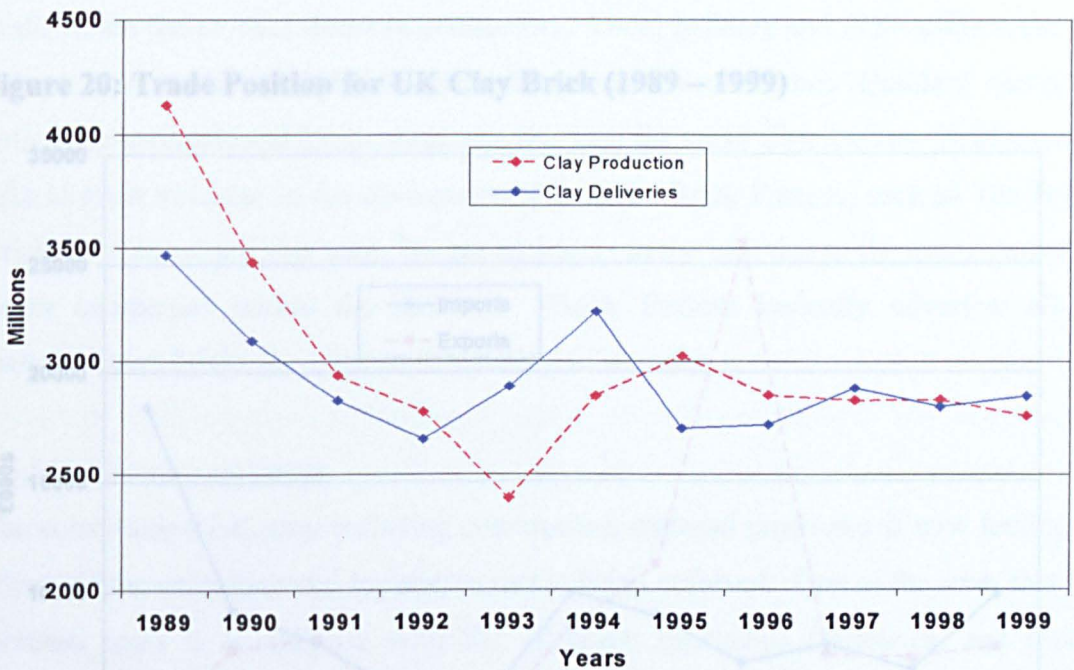
Company	Market Share Position	Turnover (£) 2000	Acquisition
Ibstock Brick	1	170 million	Redland Bricks, 1996 Acquired BY CRH, 1999
Hanson Brick Europe	2	225 million	London Brick, Butterley, Kempston and Desimple – now brand names
Marshalls plc	3	298 million	George Armitage & Sons, 1989
Baggeridge Brick	4	44 million	Rudgwick Brickworks Company, 1998
Chelwood Brick	5	35 million	Venture Capital Group CINVEN buy out in 1995, Ockley Brickworks, 1997

The other major restructuring in the brick industry has been through Brick Holding Groups. This is where companies are formed under a Holding Company but continue to work to a certain degree independently. The brick companies can utilize sales forces and improve their geographical market reducing transportation costs by supplying the bricks from the nearest production facilities if needs be. Michelmersh Brick Holding group is the most recent example of this, formed in 1999 and includes Michelmersh Brick and Tile, Dunton Bros, Charnwood Forest Brick and Blockleys.

3.6.2 Brick Demand

Although brick sales have increased since the last major construction recession in 1993, the volume of deliveries is still well below the level of the boom period of the late 1980s. Brick deliveries have remained constant over the last few years at between 3-4 billion bricks a year. In 1993, UK statistics collection was changed to standardize statistic collection with other EU countries. As a result of this, data after 1993 does not necessarily correspond with previous years.

Figure 19: Great Britain Production and Deliveries for Clay Bricks (1989 – 1999)



Source: DETR, 2000c, Monthly Statistics of Building Materials and Components.

Between 1996 and 1997 brick prices dropped by almost 12% during a period of rationalization within the industry that brought about major changes, and with it price competition (Davis Langdon and Everest, 2000).

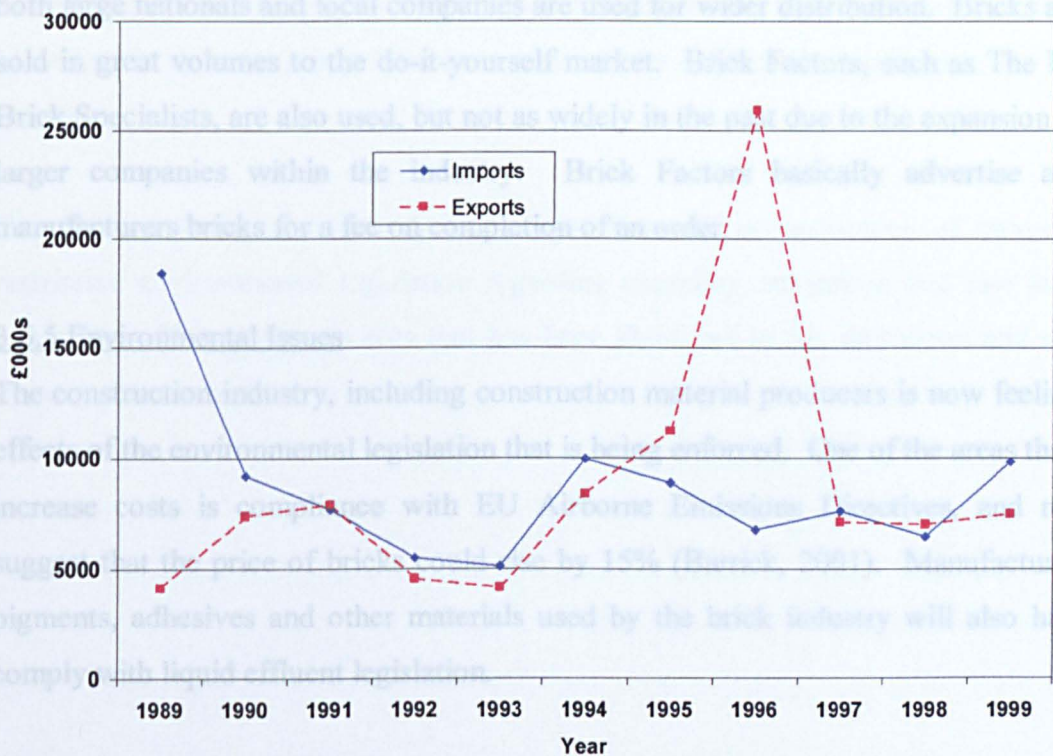
The brick industry has high inherent fixed costs, with little flexibility to reduce commitments. Brick manufacturers produce a huge range of products and variants that are offered in order to be competitive, but there are substantial costs involved in supporting such a broad product range. Brick manufacturers are also faced with the problem of adjusting stock levels to meet demand from an unpredictable housing market. Maintaining stock is expensive and is reflected in the price index.

The recent restructuring within the industry has led to a reduction in capacity, which could lead to firmer prices. However this could be counterbalanced by the major investments made at some brick plants, which should lead to greater cost-effectiveness and a more competitive position for these manufacturers.

3.6.3 Trade Position for Clay Bricks in the UK

Imports and exports are generally low for bricks due to the characteristics that it tends to be a local product and has high transportation costs. There is, however, a demand for special bricks, and there has been a trend towards increased exports for clay bricks and related products since 1993.

Figure 20: Trade Position for UK Clay Brick (1989 – 1999)



Source: DETR, 2000c, Monthly Statistics of Building Materials and Components.

The EU is the major export market for the UK brick industry, although there has been a reduction in brick exports over the last few years which can be attributed to the high value of the pound. The destination of products can fluctuate widely from year to year, and in 1997 the major European market for bricks was Germany, followed by the Netherlands. Outside the EU, the four main destinations for bricks and building blocks were the US, Canada, Saudi Arabia and Japan (Davis Langdon and Everest, 2000).

The level of imports into the UK has increased by over £3 million in 1999 and this can be contributed to the rationalisation that is taking place within the UK market and the subsequent reduced capacity at a time when the UK construction market is buoyant. The major source for the imports is from Europe and more increasingly the former Eastern European countries, such as Poland that do not have the same cost implications from environmental legislation as the UK.

3.6.4 Distribution of Bricks

The distribution of bricks depends on the volume required for a given construction site. For large projects, major suppliers have their own transport, or use logistics companies to distribute the product direct to contractors. Local builders and Self-builders, the low volume markets, buy their bricks direct from local manufacturers. Builders' merchants both large nationals and local companies are used for wider distribution. Bricks are not sold in great volumes to the do-it-yourself market. Brick Factors, such as The British Brick Specialists, are also used, but not as widely in the past due to the expansion of the larger companies within the industry. Brick Factors basically advertise all the manufacturers bricks for a fee on completion of an order.

3.6.5 Environmental Issues

The construction industry, including construction material producers is now feeling the effects of the environmental legislation that is being enforced. One of the areas that will increase costs is compliance with EU Airborne Emissions Directives, and reports suggest that the price of bricks could rise by 15% (Barrick, 2001). Manufacturers of pigments, adhesives and other materials used by the brick industry will also have to comply with liquid effluent legislation.

4.0 Conclusions

There will continue to be a market for bricks in the housebuilding, retail, commercial and certain outflow non-construction projects, such as walkways and car parks. The present period of rationalisation is developing a more streamlined manufacturing industry, which should make it more flexible and competitive than in the past. As a result, the industry should be more stable avoiding the somewhat disturbing fluctuations

of over- and under capacity that companies have found so difficult to cope with in the past.

Repair and maintenance and renovation work is set to increase in the UK due to the age of the housing stock, which is possibly the oldest in Europe. There is also an expanding market for brick for aesthetic reasons in non-housing buildings, and architects are now making use of a wide range of bricks.

The main problem facing the UK brick industry is the shortage of skilled bricklayers and this is leading brick manufacturers to develop new technology for fixing brickwork. This development has also been forced on the manufacturers due to the increased demand by house developers for quicker construction times and all of the major manufacturers are working on new brick cladding systems. This is an area that has been identified in the case study interviews and will be detailed further in part two of this chapter.

The brick industry also has to face major financial consequences of increasingly restrictive environmental legislation regarding recycling, emissions and raw material extraction. This is also an area that has been identified in the interviews and will be discussed in more detail in part two.

CHAPTER EIGHT

PART TWO

THE UK BRICK INDUSTRY ANALYSIS

1.0 Introduction

This part of the chapter is aimed at analysing the UK brick industry to test the research hypothesis and will present a summary of the results and conclusions. Appendix C contains more detail of the manufacturers and trade associations interviewed including examples of the interview documents.

2.0 Interview Design and Structure

Chapter six examined the rationale and the procedures for the interviews and this section aims to explain the rationale for the sample and to detail the interview procedures and the questions discussed. The questionnaire survey analysed the awareness of manufacturers to the CPD. The interviews are specifically looking at the impact of the Directive, concentrating on the strategy of the firm considering market entry barriers and also to develop an analysis of the industry using SWOT analysis and Porters model of Competitive Advantage.

The interaction between the interviewer and interviewee is an important part of the interview process and, within social research, it is not only the spoken answer that is analysed but connections are also drawn within a social context. Although consideration has been given to the social-interaction of the interview process, it was not the aim of the interviews to analyse the social position of the interviewee on their responses. Consideration was given to the position and roles and responsibilities of those interviewed to ensure that, firstly, they were aware of the Directive and its implication, that they were in a position to discuss its impact on their company and finally that all those interviewed held a comparable position in each organisation. Rather than social comparisons, industrial comparisons were made.

2.1 Sample Details

The main criteria for the manufacturers used in the sample were that they had completed the postal questionnaire and had requested a copy of the survey results. Fielding and Fielding (1996) identified that results of a survey can be a useful method of directing researchers to individuals for in-depth observations and this is the case in this research. Moser and Kalton (1983) suggested that there are three conditions required for a

successful interview, accessibility, cognition and motivation. All three criteria are met by the sample. The results of the questionnaire survey showed that the sample has access to the information by involvement with Technical Committees and the position they hold within their organisation; they have an interest and understanding of the subject, the CPD, and by requesting a copy of the survey results have shown their motivation to the area of research.

Although the questionnaire survey identified both the manufacturer for the sample and the individual for the interviews, the discussion concentrated on a company and industry perspective. The interview questions were designed to evaluate company and industry status rather than individual attitudes, which can be a weakness of the questionnaire.

To gain a representative sample of the brick industry the manufacturers shown in Table 14 were used for the interviews and their particular industry characteristic identified.

Table 14: Manufacturer Characteristics Involved with the Case Study Interviews

Size	Company	Characteristic
Large	Ibstock Brick	Largest producer on market share – Hanson is the only other large UK producer
Medium	Baggeridge Brick Chelwood Brick	Independent Owned by a Venture Capital Group
Small	Charnwood Forest Brick York Handmade Brick Bulmer Brick and Tile	Owned by a Brick Holding Group Independent Independent – Family run ‘cottage’ industry

Of the 22 brick manufacturers in the UK, six were chosen accounting for approximately 50% of the UK brick market. The top five manufacturers account for approximately 80-85% of the UK brick production and three were part of the sample. Hanson and Marshalls were not used in the case study as they did not meet the criteria. Hanson did not complete the questionnaire and although Marshalls did, clay brick manufacture is

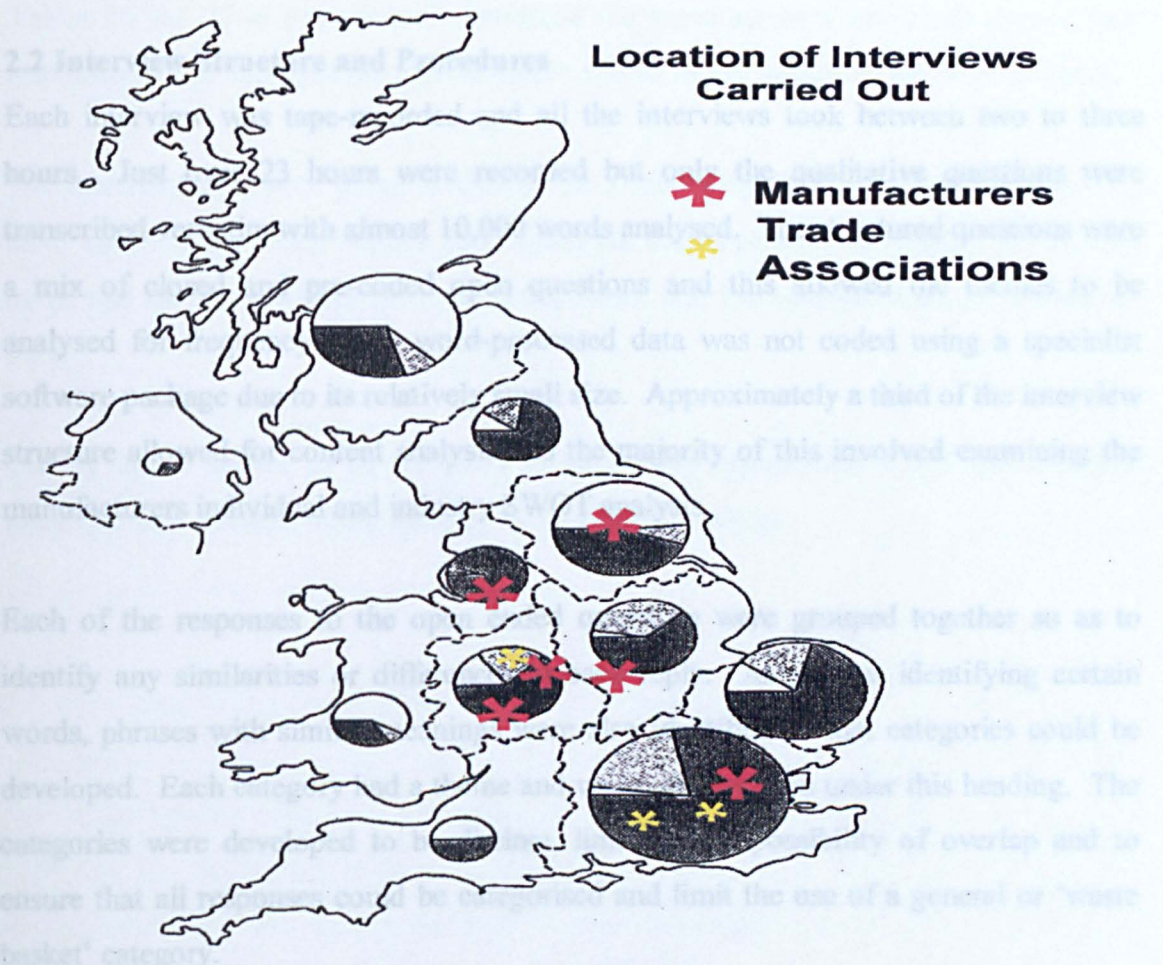
not their main business. They also have a large involvement in the concrete and aggregates market and it was felt that this factor might affect their responses.

The three other firms selected represent the smaller manufacturers, each one having a different characteristic, which is representative of the smaller UK brick manufacturers.

Development Association (BDA) and the British Ceramic Confederation (BCC) are the

The interviews covered both technical and market strategy questions and for all the manufacturers, except Istock Brick, the interviewee was able to answer all the questions. As Istock is the largest brick producer the technical and marketing functions are distinctly separate and therefore the interview was carried out with the Technical Services Manager in Leicestershire and the Group Export Manager in London. The Chelwood interview involved the Technical Director and the Design Architect but only one set of data was produced.

Figure 21: Location of the Interviews in Relation to the Clay Supplies used for Brick Manufacture



The link between the location of manufacturers and the raw materials can be seen in Figure 21 which identifies the location of those involved in the interviews.

The three trade associations that are relevant to the UK brick industry were also involved to ensure that a true representation of the industry was gained. The Brick Development Association (BDA) and the British Ceramic Confederation (BCC) are the two national trade associations for the brick industry. The BDA is only concerned with brick issues and the BCC covers all areas of ceramics including sanitary ware and tiles to tableware. The third association was the Construction Products Association (CPA) which is the national association for all material trade associations and large producers. The BDA and the BCC are members of the CPA and Ibstock brick is a member through its parent company CRH plc. Details of the companies and Trade Associations can be found in Appendix C. For the CPA and the BCC interviews, the respondent answered the technical and marketing questions. The BDA interview involved the Principal Technical Services Officer who answered the technical questions and a Senior Architect who answered the marketing questions.

2.2 Interview Structure and Procedures

Each interview was tape-recorded and all the interviews took between two to three hours. Just over 23 hours were recorded but only the qualitative questions were transcribed verbatim with almost 10,000 words analysed. The structured questions were a mix of closed and pre-coded open questions and this allowed the themes to be analysed for frequency. The word-processed data was not coded using a specialist software package due to its relatively small size. Approximately a third of the interview structure allowed for content analysis and the majority of this involved examining the manufacturers individual and industry SWOT analysis.

Each of the responses to the open ended questions were grouped together so as to identify any similarities or differences in each reply. As well as identifying certain words, phrases with similar meanings were also identified so that categories could be developed. Each category had a theme and was coded as such under this heading. The categories were developed to be distinct, limiting any possibility of overlap and to ensure that all responses could be categorised and limit the use of a general or 'waste basket' category.

The questions were asked on company information, involvement with the CPD, market environment, strategy, company resources and production facilities. The questionnaire was adapted for the trade associations and still covered the same four sections. The information gained from these interviews was to supplement the manufacturers responses and where there were any significant differences between the two groups, these are identified.

The remainder of this chapter will describe the results of the interview analysis and more details are presented in Appendix C.

3.0 Interview Results

This section presents a summary of the results, in the order of the interview, and the conclusions.

3.1 Company Information

Tables 26 and 27 in Appendix C summarise the manufacturers' and trade associations' information and highlight the representative spread of the sample to the brick industry.

The manufacturers were asked to identify the goals of their company and the following table shows their coded replies and highlights the three areas of quality (n=6), cost (n=5) and the environment (n=2) as being issues that the manufacturers are concerned with.

Quality issues appear to be the main focus for the manufacturers and this was also identified as a strength of the industry in the SWOT analysis.

Table 15: Company Goals of Brick Manufacturers Interviewed

Company	Reply
York	Supply and secure long term employment and make a positive point to the <u>environment</u> through the use of the product and to make a profit
Chelwood	Fast, friendly and flexible manufacturer, responsible on <u>environmental</u> matters and a strong commitment to <u>quality</u>
Baggeridge	Not aiming to be the biggest but the best . Differentiate to offer the best service and the best product.
Charnwood	Produce a <u>quality</u> brick at an affordable price on production efficiency and to differentiate into the more prestigious market
Bulmer	To remain successful and offer a total package in the renovation and conservation market by continually <u>improving standards</u> of restoration.
Ibstock Marketing	To be the leader in the market and to be the <u>hallmark</u> of the industry.
Ibstock Technical	To make as much money as possible by making high <u>quality</u> facing bricks and provide a return for shareholders.

Key: Quality Environment **Cost**

3.2 Involvement with the CPD

Only 2 of 7 interviewed had any involvement with the technical standards committee CENTC/125 and their involvement with the process had been through consultation documents from the BDA and the BCC. Only 2 of the others thought they should have more involvement through consultation. The remaining 3 thought that the consultation process was sufficient especially due to the long period of time of consultation, almost ten years. The BDA have a very significant involvement with CENTC/125 as Richard Smith is the Chairman of the Committee and has been involved from the start. Both the CPA and the BCC are involved with standards committees but the interviewees were not directly involved with the brick standard.

All were asked if they were aware of the six Essential Requirements of the CPD and 7 were but could not name them all. Of the six ER, Mechanical Resistance and Stability (n=5) and Energy, Economy and Heat Retention (n=5) were thought to be the most important for the European Brick standard. The variation in replies to this question highlights the fact that most manufacturers are not aware of how the CPD works and are

only concerned with what the actual standard will say and what this will mean to them. The questionnaire survey results also highlighted this point.

Neither the manufacturers nor the trade associations see the CPD having the most impact compared to other EU legislation. Environmental Directives are ranked as the most important legislation affecting the industry.

Table 16: Rank Importance of Legislation other than the CPD on UK Brick Manufacturers

Directives	Manufacturers		T. Associations	
	Score	Rank	Score	Rank
Environmental	9	1	3	1
Working / Social	16	2	8.5	2
Transportation	26	3	11.5	3
Financial	26.5	4	12.5	4

The smaller manufacturers also ranked Health and Safety legislation as having a major impact, because they make handmade bricks.

All respondents, except one, saw the UK market remaining the same over the next ten years with the advent of a new European standard for bricks. The one manufacturer who did see a change thought the market would change for the worse. The majority of the sample, 86% thought that it would be the same for European countries; the market would remain the same. The majority of the interviewees did not see the CPD making any difference to their product or to the UK brick industry. It was commented by the BCC that the CPD should slightly improve the quality of the product and therefore the industry. The trade associations did not see a need for Harmonised European Standards and only 3 manufacturers could see the benefits for exports and trade.

3.2.1 Conclusions

The CPD is not the most important Directive having an impact on brick manufacturers and therefore they are not that conscious of the Directive and do not see it as having an

impact on products or markets. All manufacturers and trade associations identified Environmental Regulations as the most important legislation at present affecting the brick industry. The smaller manufacturers that make handmade bricks are also equally as concerned with new Health and Safety legislation. Harmonised standards in the brick industry would facilitate trade but only 30% of manufacturers recognised this aim of the CPD.

3.3 Market Environment

A series of questions were asked to assess the markets that each manufacturer worked within. Only one manufacturer, Bulmer Brick and Tile did not have some involvement in all the five categories listed, they concentrate on a niche market of handmade brick for renovation and conservation projects. Only the larger manufacturers worked within the mass produced housing brick market and due to the high levels of price competition, one was looking to diversify into the more prestigious market of specialised bricks.

Table 17: % of Distribution Methods by UK Brick Manufacturers Interviewed

Distribution %	Bulmer	Baggeridge	York	Ibstock Tech.	Ibstock Mark.	Charnwood	Chelwood
Builders Merchants /Brick Factors	3	80	35	65	40-50	50-60	85
Direct to Contractors	17	20	30	20	30	20-30	15
Client/ Designer Links	80	0	30	15	20	20	0
Internet Sources	0	0	5	0	0	0	0
Merchants/Factors/ Contractors	20	100	65	85	70-80	70-80	100

The different markets that the large and small manufacturers work within is evident in the way the product is distributed. The larger manufacturers distribute their products direct to the contractors and have agreements with certain housing developers to guarantee market share. The smaller manufacturer has a higher percentage of distribution through clients and designers than through contractors. There still is a place in the brick industry for builders merchants and Brick Factors.

The interviews also identified that partnering agreements and integration of the supply chain are not being applied within the brick industry. Both partnering and supply chain integration have been identified as areas of improvement for the construction industry

(Latham, 1994; Egan, 1998) yet do not appear to be taking place. The BDA is introducing a supplier code for brick distributors to improve the quality of service provided and to improve competitiveness through better links between manufacturers, distributors and clients and it is expected to be in place by the start of 2002.

All respondents identified that local planning requirements influence the brick market and this is seen as beneficial to local manufacturers. The CPD does not cover local planning requirements and as Local Authorities consider regeneration of towns and cities, the use of traditional products such as brick is likely to increase.

Only the Group Export Manager for Ibstock thought that there had been a change in the market due to the SEM measures. He was also the only respondent that did not class the CPD as one of the SEM measures. All the others were aware that the CPD was one of the SEM measures but did not think that any of the SEM measures had changed their market. The Marketing Manager is not involved in technical matters and because the Directive is not fully implemented, it is not having an impact on European markets and therefore is possibly not seen as a SEM measure. He also has more involvement with European markets than the other respondents and this is possibly why there was a positive response to changes in the market. These results also strengthen the conclusion that there is a difference in awareness to the Directive and what it is aiming to achieve between Marketing and Technical areas within companies.

All interviewed thought that there would be a change to the market over the next ten years through competition in home markets and through technology advances. Natural resources were not seen as a problem as all the manufacturers have clay reserves of at least 20 years. Architectural trends and the shortage of skilled trades were also identified as influencing the market in the future.

UK national manufacturers were ranked as the major competitor in present markets with new technology and systems second and European interests third, these being exports and acquisitions. Table 18 represents the results and highlights the difference in the rank of importance to competition between the small manufacturer and the large. This difference is related to the markets that the manufacturers work within, as identified previously. Bulmer Brick and Tile ranked all areas as minor because their market is

very specialised whereas the three large manufacturers rank UK national manufacturers as of major importance.

Table 18: Rank Importance of Factors of Competition to UK Brick Manufacturers Interviewed

Competition	Bulmer	Baggeridge	York	Ibstock Tech.	Ibstock Mark.	Charn-wood	Chel-wood	sum	mean	R
Local Brick Manufacturers	5	1	5	5	5	2	4	27	3.86	5
UK National Manufacturers	5	1	3	1	2	2	1	15	2.14	1
European Manufacturers										
Exporting	5	2	3	3.5	3	3	3	22.5	3.21	3
Acquiring UK firms	5	1	3	3	4	3	3	22	3.14	2
New Technologies	5	5	5	2.5	1	3	1.5	23	3.29	4

This ranking was not expected to change in the future.

3.3.1 Conclusions

It is clearly evident that the manufacturers do not see the brick market changing due to the CPD at present or in the next 10 years. The major competitors to the UK brick market are large UK national manufacturers that have the economies of scale to retain market share especially in the price competitive market of housing. New technology, namely prefabricated cladding systems is also seen as a major competitor to brick. This change has been led by clients and contractors who are demanding shorter construction times that are not reliant on the weather and skilled trades. All the major manufacturers are developing cladding systems using brick slips, which are a thin brick and is different to a tile, so it can still give the appearance of brickwork.

The results also support the results of the questionnaire survey that there is a difference in awareness to the Directive between Technical and Marketing areas. The Marketing replies are more positive to the changes in markets due to SEM measures but do not consider the CPD to be a measure to aid the SEM.

3.4 Marketing Strategy

The interviewees were asked to identify the strategy that most closely represented their companies' strategy from the basic three generic strategies identified by Porter (1980a), these being Cost Leadership, Product Differentiation and Focus. They were also asked to identify whether their company had any skills and resources from a recognised list. These skills and resources identified by Porter (1980a) are required if a company is to have a successful Cost Leadership or Product Differentiation strategy and a mix depending on the Focus strategy. The results were as follows:

Table 19: Market Strategy of Brick Manufacturers Interviewed

Company	Declared Strategy	Identified Strategy from Skills & Resources
Bulmer Brick & Tile	Focus	Product Differentiation
Baggeridge Brick	Focus	Focus
Ibstock	All	All
York Handmade Brick	Focus / Product Differentiation	Product Differentiation
Chelwood Brick	Focus	Focus
Charnwood Forest Brick	Focus	Focus

Ibstock was the only company that answered that they used all three strategies. This is due to the size of the company and the wide range of activities that their brick factories are involved with. For example within the mass housing market their strategy is cost leadership, they use product differentiation strategies within the specials market and they use focus strategies within certain product groups, especially the export markets. Their responses to skills and resources also identify the strengths that Ibstock have to be able to achieve these strategies. Table 20 represents the results received.

Bulmer Brick and Tile and York Handmade Brick, the smallest of the companies interviewed do not have all of the skills and resources and the market they are in is the niche markets of specialised handmade bricks so their strategy is product differentiation within those niche markets.

Table 20: Skills and Resources Identified by Brick Manufacturers Interviewed
(Taken from PORTER, 1980)

Areas that are different to the majority are indicated by shaded areas and Top Score in **Bold** and the Lowest Score in *Italics*.

	Bulmer	Baggeridge	Ibstock Export	Ibstock Tech.	York	Chel- wood	Charn- wood	Total
Sustained capital investment and access to capital	2	1	1	1	1	1	1	8
Process engineering skills	2	1	1	1	2	1	1	9
Intense supervision of labour	1	2	1	1	1	1	1	8
Products designed for ease in manufacture	2	1	1	1	2	1	1	9
Low cost distribution system	2	2	1	1	2	2	2	12
Strong marketing abilities	1	2	1	1	1	1	1	8
product engineering	1	1	1	1	2	1	1	8
<i>Creative flair</i>	1	1	1	1	1	1	1	7
Strong capability in basic research	1	2	1	2	1	2	2	11
Corporate reputation for quality or technological leadership	1	1	1	1	2	1	1	8
<i>Long tradition in the industry or unique combination of skills drawn from other businesses</i>	1	1	1	1	1	1	1	7
<i>Strong cooperation from channels</i>	1	1	1	1	1	1	1	7
	16	16	12	13	17	14	14	

1= yes 2= no

The larger manufacturers, Charnwood, Chelwood and Baggeridge use focus strategy. They are focused on a particular market and produce products for that market and use either a cost leadership approach or product differentiation approach depending on the market. These producers that are in the middle of the brick manufacturer structure do not have the resource capabilities of Ibstock or Hanson so target their products at specific sectors. The smaller manufacturers aim for the niche markets, the largest producers can target all markets but aim for the markets with the most return.

All of the companies identified long tradition in the industry, creative flair and strong cooperation from channels as being evident in their companies and this corresponds with the SWOT analysis for the industry, these being identified as strengths of the industry. The other major difference with these results was that only Ibstock agreed that their company had a low cost distribution system. This is once again related to the size of the company and the fact that it has over 20 production facilities in the UK that can deliver to local markets and also has the economies of scale to produce and distribute the products.

The manufacturers were asked to identify their competitive advantage and quality (n=4) was again identified. This result links to the identified goals of the manufacturers.

Table 21: Competitive Advantage of UK Brick Manufacturers Interviewed

Company	Reply
York	Ability to be <u>flexible</u> in what we produce.
Chelwood	<u>Low production cost</u> and <u>high productivity</u> producing a <u>high quality</u> product.
Baggeridge	Family company small enough to care offering a <u>quality</u> product with after care .
Charnwood	<u>Quality</u> of product, service and <u>flexibility</u> .
Bulmer	Personal links, one to one service and reputation.
Ibstock Marketing	<u>Range of products</u> and geographical spread of factories, the <u>quality</u> of people in the company and <u>innovation</u> .
Ibstock Technical	Huge <u>range of products</u> and geographical spread of factories.

Key: Quality

Production Related

Care/service

Production capabilities (n=5) and customer care services (n=3) were also recognised as competitive advantages. All of these competitive advantages were identified in the SWOT analysis by the manufacturers.

The trade associations were asked to identify the Competitive Advantage of the UK brick industry, and from the following table it is evident that the main competitive advantage is the product and the public's liking for brick built houses. People see houses built of brick as structurally sound, durable and with an attractive appearance.

Table 22: Competitive Advantage of the UK Brick Industry

T.A.	Reply
BCC	Homeowners like brick – 'safe as houses'.
CPA	People like brick, it has traditional and aesthetic values.
BDA	'Brick is beautiful', it is universally accepted as attractive, robust with cost effective life cycle costs.

3.4.1 Conclusions

This analysis has identified that UK brick manufacturers do know what strategy is and are applying it to their products and markets. The negative research hypothesis has been demonstrated, the CPD has not had an impact on the strategy of UK brick manufacturers and this is not because the producers are not aware of strategy.

3.5 Company Resources and Production Processes

As the sample was representative of the UK brick industry, the manufacturers all used a variety of clay types, depending on their location, and kiln type, depending on the quantity of brick production and production method and size capabilities of the firm. The three small manufacturers make handmade bricks but the larger manufacturers also make handmade bricks but mainly mass produce bricks by mechanical means.

3.6 Barriers To Entry

All respondents were asked to rate in order of importance the 19 barriers to entry identified in the study by Karakaya and Stahl, (1989). The entry barriers were rated as to their importance to any company wishing to enter the brick industry, not the importance of the barriers to the company interviewed. The order of importance was in

four categories; not at all, a little, quite a lot and a great deal, and were scored 1 for not at all through to 4, a great deal. Table 23 represents the results of this question:

Table 23: Barriers to Entry Ranked in Order of Importance for the UK Brick Industry

Issues	Average Score	Rank
Possession of strategic raw materials	3.71	1
Government Policy	3.43	2
Market concentration	3.29	3
Sunk costs	3.14	4
Capital requirements	3.00	5
Technology and technological change	2.86	6=
Incumbents expected reaction to market entry	2.86	6=
Product differentiation of incumbents	2.86	6=
Number of competitors	2.86	6=
Price	2.71	10
Brand name or trademark	2.57	11
Research and Development	2.43	12=
Seller concentration	2.43	12=
Cost advantages of incumbents	2.43	12=
Access to distribution channels	2.29	15
Selling expenses	2.14	16
Customer switching costs	2.00	17
Divisionalisation	1.71	18=
Advertising	1.71	18=

The most important difference between the results and the work of Bain (1956), Porter (1980a) and Karakaya and Stahl (1989) is that Cost Advantages of Incumbents is only ranked 12=. Cost advantages are generally seen as being the most important barrier to market entry yet from the sample of the brick industry this is not the case, with possession of strategic raw materials ranked most important. It is for this reason that mergers and acquisition are considered one of the main entry strategies to the brick industry, and this is evident by the restructuring of the industry over the last ten years.

Mergers and acquisition provide the raw materials sites, the production facilities, the technology and experience and the product range and names, basically all the cost advantages that fellow market competitors also have.

Layton (1971) identified market features of technological or economic conditions as a barrier to entry and as raising the costs of firms already in the market and the results also confirm this with five of the top ten barriers identified by the respondents related specifically to the brick industry and its structure, those being; possession of strategic raw materials (1), market concentration (3), sunk costs (4), technology and technological change (6=) and price (10).

Shepherd (1979) stated that barriers vary due to characteristics or structure of the market and the results confirm this view. The top 6 ranked barriers to entry are very specific to an industry that requires a high investment in resources. The main entry to the brick market is through mergers and acquisitions, then through exports and third, joint ventures (see later interview results). This is due to the extremely high and timely set up costs. These costs and length of time from inception to production have also risen with the increase in environmental legislation. This also concurs with Government policy being ranked second as the most important barrier to market entry. Also included in Government policy is the impact that Government construction, mainly housing policy, has on the market for brick manufacturers. A negative construction policy reduces the brick market demand and is therefore seen as a barrier to entry.

3.7 Entry Strategies

All manufacturers were asked whether their company currently or had in the past used any entry strategies that were listed. Table 24 represents the results.

All respondents, irrespective of size, are involved in exporting their product and all through direct exports. Mergers and acquisitions are ranked second, with all of the larger manufacturers using this as a market strategy. The smaller manufacturers are more concerned with being acquired, Charnwood Forest Brick having only just changed ownership within the last two years.

Table 24: Use of Entry Strategies Past and Present

Entry Strategies	York	Chelwood	Baggeridge	Charnwood	Bulmer	Ibstock Tech.	Ibstock Export	Aver. Score	Rank
Exports	1	1	1	1	1	1	1	1.00	1
Franchising / Licensing	2	1	2	2	2	2	2	1.86	5=
Branch Office / Subsidiary	2	1	1	2	2	2	1	1.57	3
Joint Ventures	1	2	1	2	2	2	2	1.71	4
Mergers & Acquisitions	2	2	1	2	2	2	2	1.86	5=
	2	1	1	2	2	1	1	1.43	2

1= yes 2= no

The licensing and franchising agreements that the larger manufacturers are involved in are for developing new cladding systems with either steel fabricators, precast concrete manufacturers and cladding system manufacturers. The brick manufacturers hold the license and Chelwood Brick also franchise their name with the system. Baggeridge Brick has a license agreement and a joint venture with a steel fabricator to produce a cladding system that is due to come on line this year. Although this is an entry strategy into the prefabricated market it is a strategy that is being used to protect existing housing markets. Housing developers are demanding fast-build systems and the greater use of prefabrication to increase the speed of construction, reduce costs and reduce the reliance on skilled trades.

Although two manufacturers replied that they had Branch Offices they are purely sales offices and are based in the United Kingdom. The size and structure of the companies, also the nature of the product, mean that this is not a realistic entry option for brick manufacturers. Although joint ventures are not presently being used widely, they are seen as possible strategies for the future to enter developing countries where they have the resources but not the technological expertise. Ibstock are currently considering entering the vast Chinese market through joint ventures, although there are concerns within the company that once the Chinese manufacturers understand the technology and have the production facilities to mass produce bricks, they will then become a threat to Ibstock's markets.

3.7.1 Conclusions

The results again highlight the specific nature of the brick industry identifying the entry strategy that is best suited to an industry that relies heavily on the availability of resources and has a high production set-up cost. This also supports the entry barrier results that the most suitable and used entry strategy for this industry is through exports and mergers and acquisitions.

The CPD is removing a technical barrier to trade and can be classed under Government Policy as a barrier. The five most important barriers that previous research has identified are economic-based and therefore cannot simply be removed without Government intervention. As the market becomes more competitive these economic barriers should become less restrictive.

3.8 Current and Future Issues Affecting the Brick Industry

The manufacturers were asked to score in order of importance 22 issues that were detailed in the DETR UK Materials Sector Report of 2000 (Davis Langdon & Everest, 2000). In the DETR report Senior Representatives (*DETR Comp*) of producing companies were asked for their views on issues that they considered had or would influence their current and future policies and strategies. The results were ranked and the same issues were put to the relevant UK trade associations (DETR TA) for their view on the perceived importance on the UK materials sector.

The aim was to see if there were any correlations between the DETR results and the brick manufacturers interviewed. The materials sector is so wide in its range and variety of products that summarising can lead to the actual results not relating to any particular products group. Table 25 shows the results from the brick interviews compared with the DETR report results and clearly shows that the brick companies responses are more in parallel with the trade associations view than the DETR materials companies. The Spearman Rank Correlation coefficient test was applied to the data and shows a strong positive correlation between the brick replies and the DETR trade associations for both current and future (current, $\rho = 0.872$, and future, $\rho = 0.755$) This is compared to a correlation coefficient of 0.530, current and 0.292, future between the DETR companies and the brick replies.

The interviewees were asked if they had been involved in the original DETR survey or had seen the report and none had. All questioned are in a position of senior management and if not directly involved in strategic decisions are aware of the policies and strategies of their company. This reinforces one of the problems that has already been discussed in the Materials Sector Chapter, that it is difficult to summarise the sector as one industry as it has a vast amount of product industries under the umbrella title of the Materials sector, each industry with its own characteristics and structure that influence its strategies and policies. The results clearly show this.

The trade associations were identified, by the smaller manufacturers, as one of the strengths of the brick industry and this may be one of the reasons for the brick manufacturers responses being more in line with the trade associations than with the companies in the DETR Report. Trade associations are often described as the representative of the smaller manufacturer, the large manufacturers having the funds to 'fight their own battles' and the brick industry structure comprises of a few large companies and a lot of small to medium sized companies.

It can clearly be seen from the results how important the materials sector views Regulation, both the trade associations and the brick manufacturers rank the importance of Regulation as 1st and 2nd respectively both now and in the future. This also concurs with the analysis of barriers to entry to the industry, with Government Policy being seen as 2nd in importance to the brick industry. However, the DETR companies only ranked Regulation as 13th and 15th. This reinforces the point that the Materials Sector cannot be generalised. The brick industry is being hugely affected by increased legislation on energy and environmental issues and also on Health and Safety legislation, especially the smaller manufacturers that make hand made bricks. This is not the same across the whole materials sector, those products that do not involve extraction of raw materials and high energy production costs, such as timber and plastics, do not see Regulation as their major concern.

The DETR companies have also only ranked the environmental issues and sustainability as currently 7th and 5th respectively for the future, yet this is currently ranked 3rd by both the trade associations and the brick manufacturers and as only getting more important in

the future ranked equal 1st with Regulation by the trade associations and equal 2nd by the brick manufacturers.

Table 25: Rank Importance of Current and Future Issues Affecting Strategies and Policies

Issues	IMPORTANCE					
	Rank Score			Rank Score		
	Current			Future		
	DETR TA	DETR Comp	Brick	DETR TA	DETR Comp	Brick
Regulation	1	13	2	1=	15	2=
Competition	2	2	9=	3	3	8=
Environmental issues / sustainability	3	7	3	1=	5	2=
Efficiency / productivity	4	1	1	5=	7	1
Role of Government	5	8	4=	8=	13	8=
Taxation	6	14	6=	8=	19	5=
Training	7	10	6=	5=	11	8=
Innovation	8	12	4=	10	12	5=
European Union	9	18	14	8=	17	17=
IT/e-commerce	10	15	11=	4	1	5=
Supply chain logistics	11	6	9=	11	4	12=
Consolidation	12	3	11=	12=	2	12=
Distribution	13	4	11=	12=	9	12=
Research	14	19	15	12=	21	12=
Management style / Respect for People	15	5	6=	15	8	4
Exchange rates / the Euro	16	11	20=	16	14	16
Partnering	17	17	19	17	10	17=
Diversification	18	21	17=	18	22	20
Foreign ownership / foreign direct investment	19	16	17=	19	16	19
Off site assembly	20	22	16	20	20	8=
Outsourcing	21	20	20=	21	18	21
Globalisation	22	9	22	22	6	22

Efficiency and productivity is the area that is currently ranked the most important by the DETR companies and the brick manufacturers. Competition is increasing in the UK market and production costs are increasing due to environmental and energy taxation being introduced. Producers have to be more cost efficient in production and to increase productivity to remain price competitive in a market that is becoming more open to imports from countries with a lower production cost. From the results it can be seen that the brick manufacturers are more concerned with improving efficiency and productivity due to the increased environmental implications, a point that was raised by everyone in the interviews.

The DETR companies' link efficiency and productivity with consolidation, this being ranked currently 3rd and 2nd in the future. Consolidation of the market can lead to price competitiveness due to economies of scale of the larger manufacturers and therefore to compete companies will have to improve productivity. The brick industry has continuously gone through a period of mergers and acquisitions over the last thirty years and the market had consolidated drastically to the number of brickmakers that were present in the early 1970s. The last five years has also seen another round of mergers and acquisitions and it is therefore not seen as such a major issue compared with other product industries that are only now starting to feel the effect of market consolidation. This is clearly shown in the results as competition is ranked currently 2nd and 3rd in the future by the DETR companies and 2nd and 3rd respectively by the trade associations. The trade associations are concerned with competition because if the market is highly competitive and open to consolidation, this can reduce their membership and therefore their funding. This was also identified as a threat by the Associations interviewed.

The other main area where all three groups hold the same view is for the future of IT and E-commerce, with it being ranked within the top 5 for importance. This area was also raised in the interviews by the small to medium manufacturers as improving production and advertising of the products and services.

3.8.1 Conclusions

The main conclusion to be drawn from this question is the fact that generalisations should not be made about the materials sector as a whole. The individual product group must be targeted and researched and then comparisons drawn with the materials sector.

3.9 The SWOT Analysis

The last section to the interview was for a SWOT analysis of the company and the UK brick industry to be carried out. Manufacturers were asked to identify what they perceived were the strengths, weaknesses, opportunities and threats of their own company and also of the UK brick industry. The SWOT analysis technique is traditionally used to analyse organisations and in this study it has been extended to analyse the industry. The rationale for this was that the SWOT analysis for the UK brick industry should equate to the SWOT analysis for the collection of the sample manufacturers, as they are the UK brick industry. Burgelman and Grove (1996) identified that companies which survive in changing business environments, by adapting to these changes, have a similar set of characteristics, although they are shaped in different ways.

The analysis of the responses is not detailed individually in this chapter but is in the Appendix C. The similarities within the UK brick manufacturers were clearly evident in the individual SWOT analyses and by analysing these; a single SWOT analysis was produced. The individual responses from each interview were collected together and grouped under headings for each section; strength, weakness, opportunity and threat. The replies were further categorised, under each heading, to identify the main themes. The data grouping is shown in Appendix C.

The same process was carried out on the manufacturers and trade associations responses for the industry SWOT. Figure 22 shows the result of the analysis identifying the SWOT for the manufacturers and the UK brick industry. The groupings in italics are those areas that are not common to the two SWOT sets. As can be seen there are few areas that are not common and by analysing the categories again, using the same procedure, a final definitive SWOT analysis model for the UK brick industry was produced, Figure 23.

Figure 22: Summary of the Analysis of the UK Brick Industry and the Brick Manufacturers

Summary of the Individual Companies
SWOT Analysis of the Brick Industry

Strengths

- Quality and range of products
- Production capabilities
- Industry Presence – National and local
- Trade Associations and networks
- Brick perception – traditional
- *Environmental attributes*

Weaknesses

- *Production requirements*
- Market restrictions
- Product restrictions – weather / trade skills
- *Industry adaptability*
- Self promotion
- Design fashion and trends
- *Finance not industry driven*

Opportunities

- Exports
- Development – products / markets
- New initiatives
- *Revisions to Building Regulations*

Threats

- Imports
- Legislation and bureaucracy
- Environmental implications on production
- Architectural fashions
- Alternative materials and products
- Product limitations

Summary of the Individual Companies
SWOT Analysis of Themselves

Strengths

- Product range and quality
- Product characteristics – planning
- Production capabilities
- *Customer service care*
- Reputation
- Organisation / company abilities

Weaknesses

- *Human resource issues*
- *Financial constraints*
- Industry and product perceptions
- *Size implications*
- Market restrictions
- Marketing

Opportunities

- Product development
- Adapting existing products / diversification
- New markets
- Improve existing business
- *Customer care*

Threats

- Imports
- Legislation and environmental restrictions
- Alternative products and systems
- *Market conditions*
- Industry / Product restrictions

The strengths of the industry are related to three main points; the product offered, the production of the product and the perceived image of the product by outside industry. This last point is not an internal strength but an external one. Brick is a traditional product, part of our heritage and homeowners want brick built houses. This ensures that brick remains a major building product without the manufacturers having to be involved with massive marketing costs.

The weaknesses fall into two areas, restrictions to the industry by the product nature and its strong ties to construction industry trends, and the industry image. Although brick has a constant market in housing, the industry is sometimes seen as 'dirty and smelly' and old fashioned in the product's attributes.

The opportunities relate to two areas, new markets and products. Although these two are identified as opportunities they are also strategies for market survival. External factors such as the opening of markets globally and the current demands in the construction industry for increased productivity levels are influencing these opportunities. They are not related to the CPD.

The threats fall into two areas, the impact on existing markets through imports, alternative products and architectural trends, and the increase in legislation and bureaucracy especially related to the environment.

3.9.1 Conclusions

By asking the manufacturers to identify the strengths, weaknesses, opportunities and threats that are relevant to their own company and also for the brick industry, two sets of data could be analysed. The content analysis produced a single SWOT analysis for the manufacturers and one for the industry. By further analysis of these two profiles, a single SWOT analysis was produced for the UK brick industry providing a detailed picture of the industry that can be used by manufacturers and trade associations to identify future strategies for success.

From the results it is clearly evident that the CPD is not seen as a major factor affecting the industry at present.

Figure 23: SWOT Analysis Model for the UK Brick Industry**Strengths**

- Quality and range of products
- Production capabilities
- Product characteristics – planning
- Industry Presence – National and local
- Brick perception – traditional
- Reputation

Weaknesses

- Market restrictions
- Product restrictions – weather / trade skills
- Industry and product perceptions
- Design fashion and trends
- Marketing
- Self promotion

Opportunities

- Exports
- New markets
- New initiatives
- Development – products / markets
- Adapting existing products / diversification
- Improve existing business

Threats

- Imports
- Legislation and bureaucracy
- Environmental implications on production
- Architectural fashions
- Alternative materials and products
- Industry / Product restrictions

This analysis has identified a set of characteristics that can be clearly associated with both manufacturers and the UK brick industry as a whole. These characteristics have been expanded to adapt Porter's Competitive Analysis model to the UK brick industry. This has also not previously been applied to the UK brick industry and is detailed in the next section.

3.10 Porters Competitive Analysis Model

All of the data that has been gained from the interviews and the SWOT analysis have been applied using an adaptation of Michael Porters Competitive Analysis Model (1980a) to the industry. All of the five forces are affected in part by technological change, legislation or government regulation and for this reason the model has been adapted applying areas of Andrews analysis model (1980) that considered environmental conditions and trends.

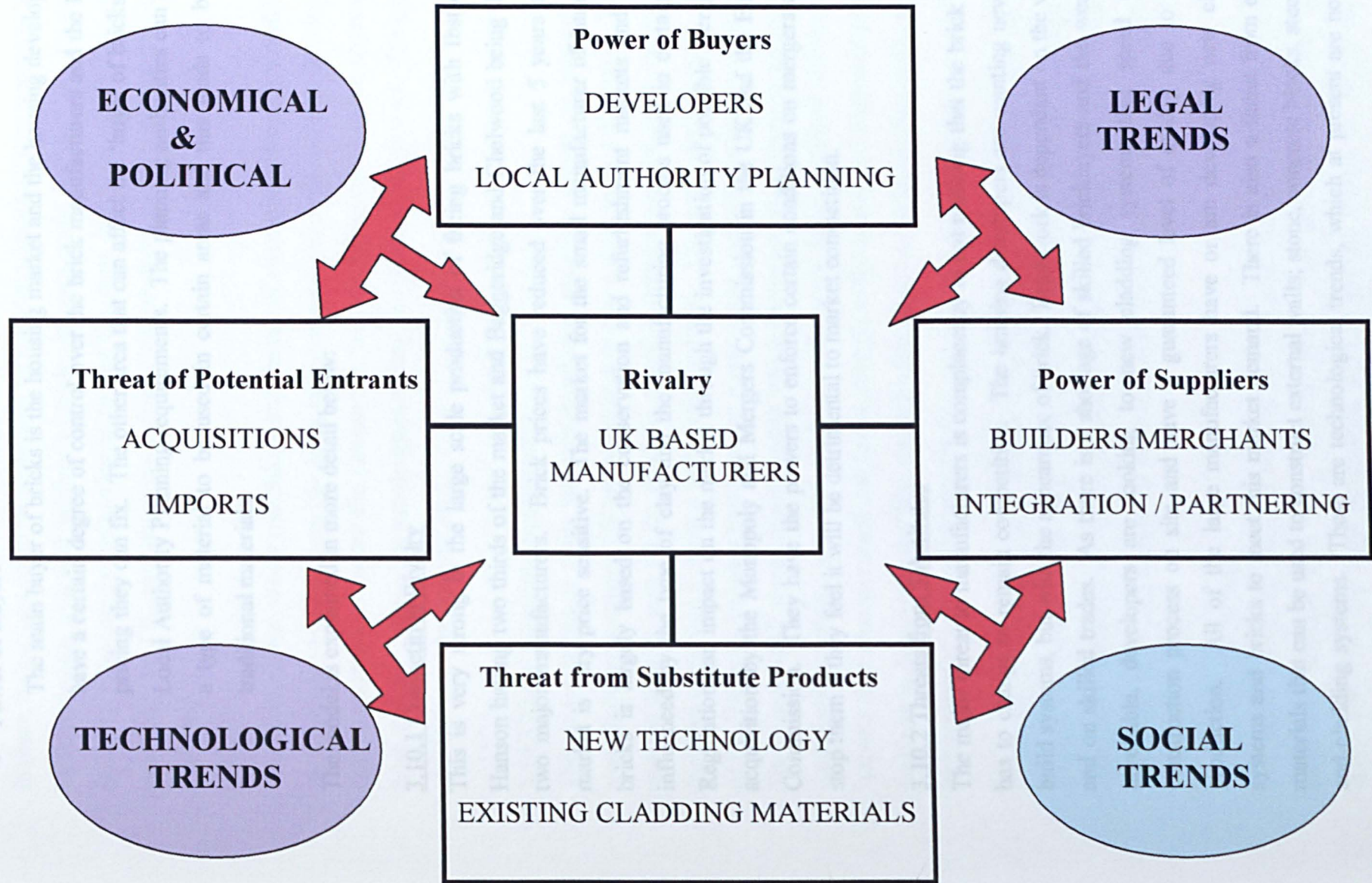
Figure 24 shows the competitive analysis profile of the UK brick industry. The three areas shaded in purple that have the major influence on Power of Buyers, Threat of Potential Entrants and Threat from Substitute Products are all governed by Regulators, those being the EU and national Governments. Government regulation is not identified as a single specific factor as it is evident from the analysis that it has an influence on all of the factors. This will be outlined in more detail when discussing each individual factor of the model.

The two main factors that have been adapted slightly from the original Porter model is due to the nature of the brick industry and are:

- **Power of Suppliers**

The brick industry is not affected by suppliers within its production processes as the manufacturer owns the raw materials that are needed for production. The only impact of a supplier on the industry would be the energy supplier and legislative requirements on energy consumption are affecting the brick industry. However for this profile the power of suppliers refers to the 'middleman process'. This is the distributors and the new initiatives aimed at improving the supply of construction materials to site.

Figure 24: Competitive Analysis Model of the UK Brick Industry



- **Power of Buyers**

The main buyer of bricks is the housing market and the housing developers do have a certain degree of control over the brick manufacturers and the level of pricing they can fix. The other area that can affect the 'buyer of bricks' is the Local Authority Planning requirements. The planning authorities can specify a type of material to be used in certain areas and this tends to be local traditional materials.

The model is explained in more detail below:

3.10.1 Competitive Rivalry

This is very strong in the large scale production of facing bricks with Ibstock and Hanson having two thirds of the market and Baggeridge and Chelwood being the next two major manufacturers. Brick prices have reduced over the last 5 years and the market is very price sensitive. The market for the small manufacturer of hand made bricks is largely based on the conservation and refurbishment markets and can be influenced by the type of clay and the manufacturing process used in certain areas. Regulation can impact on the market through the investigation of possible mergers and acquisition by the Monopoly and Mergers Commission in the UK and the European Commission. They have the powers to enforce certain conditions on mergers or even stop them if they feel it will be detrimental to market competition.

3.10.2 Threats from Substitutes

The major threat to manufacturers is complacency in not realising that the brick market has to change to remain competitive. The housing developers are wanting new faster build systems, but with the appearance of brick. Brickwork is dependant on the weather and on skilled trades. As there is a shortage of skilled bricklayers and the weather is unreliable, developers are looking to new cladding systems that speed up the construction process on site and have a guaranteed level of quality due to factory production. All of the large manufacturers have or are developing new cladding systems and bricks to meet this market demand. There is also a threat from existing materials that can be used to construct external walls; stone, concrete blocks, steel, glass and cladding systems. These are technological trends, which at present are not being

affected by the CPD. However, in the future with full harmonised European standards in place, technology could be influenced by European construction systems and with the CPD removing technical barriers to trade, imports could increase this process. At present Environmental regulation is having the most impact on technological trends especially for UK manufacturers trying to export their products to certain European countries.

The development of new technology and the use of alternative materials are affected by social trends. Homeowners like brick built houses so manufacturers are developing the cladding system to ensure the homeowner has a property that has the appearance of brick and the contractors and developers have the faster build systems. Design trends also influence the material used.

3.10.3 Threat from Potential Entrants

The major threat is from large multinational materials groups or European brick manufacturers acquiring UK manufacturers to gain a share in the UK market. The costs and the time to gain all the required planning permissions and build the production facilities mean that it is not a viable entry method. The recent changes in the structure of the UK brick industry highlight the mergers and acquisitions that have taken place. There is a small threat from imports which increases when there is an increase in construction activity and UK brick manufacturers have increased delivery times. Imports have also increased due to the strength of the pound and improved production facilities in former Eastern bloc countries that have less stringent regulations to adhere to reducing their production overheads.

Economic policy can greatly influence the demand for construction and the current government policy on housing is influencing both social housing associations and speculative developers. If the economic climate is healthy this also increases the possibility of foreign companies looking to enter the UK market through acquisition.

3.10.4 Power of Buyers

The major market for bricks is housing and this gives the housing developers a strong bargaining position with brick manufacturers. The larger manufacturers all have agreements with the large developers, such as Barratt Homes, to supply their sites

direct. This ensures the large brick manufacturers full production capacity which reduces the unit cost of production for the brick and reduces the stock piles. The housing developer is restricted to using brick as their external cladding material due to the demands of the homeowner and the Local Authority Planning requirements. House buyers prefer brick houses as they are seen as being structurally sound, durable and aesthetically pleasing. Local Authority Planning requirements are becoming more stringent on the materials that are used and the look of buildings in their environment. The present redevelopment of industrial inner city areas is providing the brick industry with increased demand for bricks in the non-house market.

The increasing use of agreements and integration of the supply chain are considered more as legal issues rather than economic and political, although the main reason is purely based on economics. The Monopolies and Mergers Commission could also be involved if agreements are seen to be reducing competition. The changes in the national planning regulations, with the reduction of new build on green field sites and the increase in conservation areas, are impacting on the brick industry especially in certain areas of the UK.

3.10.5 Power of Suppliers

This is not really an issue to the brick industry as all brick plants are built on or near their clay reserves and they are not reliant on suppliers of materials in the production of bricks. They are very reliant on the supply of energy for their production facilities and this is becoming increasingly an issue due to the increase in environmental legislation. Most of the large manufacturers have agreements to supply developers and contractors direct to site and small manufacturers of hand made bricks are manufacturing bricks predominantly for a specific project, so deliver direct to site. There are also agreements with the major Builders merchants to stock their products and there are local and national Brick Factors, although they are reducing in market share.

3.10.6 Conclusions

Porter's analysis produces a graphical model of the UK brick industry that is easily understood, clearly showing the five factors that influence the industry competitiveness and the four external factors. Both manufacturers already within the brick industry or possible new entrants can use this model to understand the environment so they can

match it with their competitive distinctive competencies and gain a fit between environment and strategy. It is important to assess these factors if not familiar with the UK brick industry, as these factors may be different or vary in significance in other national brick industries.

This model is not definitive and it will need to be reviewed and adapted as the industry changes.

4.0 Conclusions

The UK brick industry is important to the UK construction industry as it is a major component in the construction of housing. The case study interviews have identified the UK brick industry position with regards to the CPD and other European measures. The results lead to the conclusion that the CPD is having no 'real' impact on the UK brick manufacturers and they do not see it as having any impact over the next ten years. The manufacturers do however see their market changing in the future becoming increasingly more competitive due to rivalry between UK manufacturers and new technology and systems being used.

The results identify the market barriers that are present in the brick industry and compare these to previous research. The characteristics that make the brick industry different to other manufacturing sectors also affect the barriers to entry, the main one being the possession of raw materials. This leads us to conclude that due to the entry barriers identified and the characteristics of the brick industry exports or mergers and acquisitions are the optimum entry strategy to use for this market.

The interviews also compared previous construction materials sector reports to the brick industry and the results lead to the conclusion that generalisations should not be made between the different industries that make the UK construction materials sector. Each industry should be considered separately.

A SWOT analysis profile was produced for the brick industry and used to develop the competitive analysis model for the UK brick industry. This clearly shows the position for a brick manufacturer in the UK industry and the factors that need to be considered when planning to enter this market. Both the SWOT analysis and the competitive analysis profile for the UK brick industry have not been produced previously and they can be used to assess the market by an existing competitor in the industry or if considering to enter this market.

CHAPTER NINE

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS OF FUTURE WORK

1.0 Introduction

This chapter summarises the research and presents the main conclusions and recommendations for further study. It identifies the research's contribution to existing knowledge.

This research has sought to prove the hypothesis that:

'The Construction Products Directive will impact on the strategic decisions that UK Construction Product Manufacturers make to changes in their business environment.'

In light of this hypothesis, the main objectives of the study have fallen into three main areas. These being to identify and analyse:

- The Directive, its origins, its proposed purpose and its implementation within the UK.
- The specific characteristics of the materials sector within the UK and EU construction industries.
- The strategy of a particular product group, the brick industry, and whether the CPD has influenced manufacturers strategy.

The conclusions of this research are classified in these three main areas and are brought together by applying them to one particular product group, the UK brick industry.

As well as considering the conclusions within these three areas, there is one generic point that follows through all three that the research has addressed, that is the gap in specific research in this area.

- The Directive is a new piece of legislation and therefore there is little literature into its application.
- The construction materials sector, and in particular the brick industry, has not been examined previously with regards to strategic management. Research into the construction industry has nearly always concentrated on scientific/technical matters or on management issues from either a contracting or professional viewpoint.

- Existing strategic management theory and research has been adapted and applied to the specifics of the UK brick industry and comparisons have been made with previous research findings and specific conclusions to market barriers and entry have been drawn for the brick industry.
- The UK Brick industry has been investigated and distinct characteristics that make the industry different within the materials sector are identified. The conclusions are shown in a SWOT matrix and a Competitive Analysis model for the industry.

This contribution to existing knowledge by considering these above points is evident throughout the research's conclusions.

2.0 Conclusions of the Hypotheses

The main conclusion is that the:

*European Construction Products Directive has had **no impact** on the strategic decisions that UK product manufacturers have made to changes in their business environment.*

Results from the questionnaire survey and the case study interviews support this conclusion. However, this needs to be considered further by concentrating on the three areas within this hypothesis that are detailed later in section 3.0.

2.1 Origins of the Hypothesis

It is at this point, that another conclusion of this research must be discussed. On starting the research, the CPD was seen as a major piece of legislation that would hugely influence the construction products industry. There was a lot of media attention to '1992' and the perceived impact of the Single European Market. The DTI published manuals, the DOE and the Building Magazine introduced the Construction Monitor concentrating on European issues affecting construction and there were constant articles in the trade press and construction journals. Although the CPD had already been in place for five years, there was still uncertainty in the industry as to how far the Directive would go into standardising products across Europe.

This original enthusiasm led to the main research hypothesis that the CPD **would** have an impact on UK product manufacturers. However, the research has concluded, that the Directive has had no ‘real’ impact on the product manufacturers to date and the results of the questionnaire and case study interviews on the UK brick industry show that manufacturers do not see any direct impact until there are full European Standards.

2.2 Initial Hypothesis

The initial research stages and the questionnaire survey were to test the awareness of the UK products industry to the CPD as well as its impact.

‘UK Construction Product Manufacturers will be affected by the introduction of the European Construction Products Directive.’

The questionnaire survey analysis showed that an alarming **40%** of the respondents believe that the CPD does not apply to either their product or their company. One of the reasons for this is the reduction in promotion of the CPD by the Government bodies and the trade associations due to:

- The slow production of full European harmonised standards
- Other legislation impacting on product manufacturers that are having major implications.

2.2.1 Indirect Impacts

The questionnaire results show that the indirect effects of the Directive have been in the amount of time and money that manufacturers have invested in the Technical Standards Committees over the last ten years or so. **69%** of the respondents were involved with the implementation of the Directive through Standards Committees. The case study interviews also concur with these results and also highlight the impact on the Trade Associations workload.

This indirect effect has been caused by the fears that the industry originally had, that a possible direct impact of the Directive could be in the new European Standards being very different to the current British Standards and this would therefore lead to a change in production methods at a high cost to the manufacturers. It is for this reason that large manufacturers and the relevant Trade Associations have been UK Representatives on the Technical Standards writing committees.

Another indirect impact to the manufacturers, that was evident in the results of the case study interviews, will be in the need for the manufacturers to adapt their marketing and product literature to make customers, the specifiers and contractors, aware of any changes or differences between a new European Standard and the British Standard for their product. This should help to ensure that the customer is aware exactly what the product is capable of, for the price that is being paid, and seek to raise the awareness of customers to cheaper imported products that could possibly only meet the minimum requirements of the European Standards.

2.2.2 Direct Impacts

A direct impact of the Directive will be in the need to change packaging to incorporate the new details that show compliance with the European Standard. At present, this impact is only on cement manufacturers but in the future it will impact on all product manufacturers covered by the CPD. To aid the manufacturers the Government has been running seminars and has produced guidance papers to raise awareness and help to prepare manufacturers for this eventual impact and change to packaging. The case study interviews with the Trade Associations evidenced this as a direct impact, yet the manufacturers did not. As it is not likely that there will be a European brick standard for at least another year, manufacturers do not see this as an immediate concern.

The manufacturers of non-standard bricks, who tend to be the smaller hand-made brick manufacturers, do not comply with the current British Standard and therefore will not comply with a new European Standard. As the majority of their work is in the conservation market and therefore the product qualities are tied to the raw materials, there are few opportunities for imported products and therefore the manufacturers interviewed, do not see their market being affected by the Directive.

2.3 Sub-Hypothesis

The second stage of the research was to investigate whether the Directive has had an impact on the manufacturers strategy, specifically concentrating on the UK Brick Industry.

'The Construction Products Directive will impact on the strategic decisions of UK Construction Product Manufacturers.'

Both the results from the questionnaire survey and the brick industry interviews lead to the conclusion that the CPD has made no direct change to UK producers' strategy. This is due to:

- **No harmonised European Standards for the products when tested.**
The European standard for cement was not published when carrying out the postal questionnaire to Portland cement manufacturers.
- **Business decisions have been made due to the market environment.**

Producers do not see a 'real' impact on their markets due to the CPD and therefore have not specifically adapted their strategies to this change.

2.4 Summary

The research hypotheses may have tested negative but the research has still identified areas of importance to contribute to further research and to expand the understanding of the materials industry. It has also identified particular characteristics for the brick industry by applying existing research models.

3.0 Material Sector Conclusions

One conclusion that can be drawn from the analysis of the UK brick industry is that generalisations should **not** be made about the UK construction materials sector. The specific characteristics should be identified for the product area that is being considered. This is very important when considering market entry into a particular sector and will be discussed further in Section 5.1.

3.1 Role of the Trade Association

The research concludes that trade associations can play a major role within product areas and the brick industry is an example of this. The variation in trade associations across the product groups and the role they play is evident in the questionnaire results and the variation in responses between the different product groups.

The brick industry is very well organised with good links with the trade associations and also between companies, as demonstrated in the SWOT analysis. Other product

groups that consist of a majority of small firms may not have a sufficiently large membership or may cover a vast variety of product areas that dilute their significance and membership.

Although trade associations are seen, especially by the Government, as representing their industry they will only report back to their members and this leads to a gap in information, and therefore awareness, that needs to be filled. The impact of the reduction in Government publicity of the Directive is clearly evident in the questionnaire results, manufacturers are not aware of the CPD and its implications.

3.2 Implications of SEM Measures

The CPD is not the most important piece of legislation impacting on brick manufacturers. The case study interviews conclude that both large and small brick manufacturers are more concerned with the increasing amount of environmental legislation and its implications on cost through increased taxes, production facility changes and increased paperwork than the CPD.

All involved with the UK brick industry are concerned with the increased bureaucracy due to European measures. Both the SWOT analysis and the Competitive Analysis model for the brick industry identified the increase in legislation and especially environmentally related legislation as a threat to the industry.

4.0 CPD Conclusions

The CPD is in place so it should be having an impact, but it is not. The major reason for this is the time that it is taking to produce European harmonised technical standards. Under the CPD, at present, there is only one full EN, BS EN 197-1: 2000 for the specification of cement products. Until there are more harmonised technical standards, the impact will not be seen. Within the next 1 – 3 years it is estimated that well over 300 EN's will be published. At present, 50 are almost finished and are expected to be published within the next year. The current position for the brick standard, at the time of writing, is that it has been delayed further and is not expected to be ready for at least another year.

4.1 Increased Publicity

As identified previously, an indirect impact will be the need for increased publicity about the Directive. It is not just necessary to raise awareness for the product manufacturers; designers and contractors must also be made aware of the Directive and its implications.

As more standards come on line there will have to be more publicity from the Government to make **specifiers** more aware of the European Standards. Those manufacturers that are aware of the forthcoming standards are more concerned that specifiers and contractors are not and that the confusion of new European Standards will open the market to 'cheaper, lower standard' products. The true impact of the Directive on Product manufacturers could be through the specifiers rather than the actual new standards. This concern raised by manufacturers strengthens the conclusion that trade association can play a major role within particular product groups.

To raise awareness manufacturers will have to develop literature to promote their product demonstrating how their product complies with the new standard and how it compares to the original British Standard. The smaller brick manufacturer that does not have the capital to invest in promoting the changes and the impact on their product, rely on the BDA to promote the entire brick industry and make specifiers, contractors and clients aware of the changes and how it affects all types of brick. Promotion of the brick industry is the main role of the BDA and is an area that was questioned by the manufacturers. It is an area that they feel needs to be improved and is highlighted in the SWOT analysis.

5.0 Conclusions on the Strategy of the Brick Industry

The hypothesis that the CPD would have an impact on the business environment of UK producers has tested **negative**. The case study results conclude that the manufacturers are aware of what market strategy is and how it impinges on their business, therefore the rejection of the hypothesis is not due to brick manufacturers not being aware of strategy but the fact that the CPD has made no impact on their markets. The UK brick industry

has adapted its strategy to changes in the market but purely due to economic decisions in order to remain viable by being competitive within their own market segments.

5.1 Market Barriers and Entry Strategies

As the CPD aims to remove technical barriers to trade, market barriers and market entry strategies were tested through the questionnaire and in more detail through the case study. The results once again clearly identify the importance of considering the specific market and its particular characteristics. The conclusion is that to enter the brick industry the best market strategy is through exports and/or through mergers and acquisitions. This also corroborates the identified barrier to entry, which is possession of strategic raw materials.

These conclusions correspond with the selection criteria for using the brick industry as a case study. These were that the brick industry is tied to location of the raw materials and not the market, and that it requires a high capital investment in production. It is also fair to conclude that those construction materials industries that have similar characteristics to the brick industry, such as cement and glass manufacturers, would also have the same barrier to entry and optimum entry strategies to new markets. The results also concur with the view that barriers to entry are as much influenced by technical and market conditions as cost advantages.

It is also evident from the case study that Government policy is a major barrier to entry into the brick industry and a concern to those already in the market. Although the CPD is not affecting the producers, environmental legislation is significantly affecting the industry from extracting the raw materials, producing the bricks and delivering the bricks to site. The nature of the brick industry stops opportunists entering the market at a boom period and the return to shareholders is low compared to the new e-commerce industries so does not appear attractive to those not already involved in the construction industry.

5.2 Analysis of the UK Brick Industry

Two approaches were applied to produce a detailed analysis of the UK brick industry; first the SWOT analysis technique was employed and the results of this were then applied to develop a competitive analysis model.

The interview responses to the SWOT analysis for the manufacturers and the industry were examined to produce two profiles that were then analysed further to produce a definitive SWOT analysis for the UK brick industry. Traditionally the SWOT analysis is used to evaluate organisations and for this study it was also applied to the industry. The rationale behind this was that the SWOT analysis profile of the manufacturers should equate to a SWOT analysis of the UK brick industry, as those interviewed were a representative sample of the industry. The results clearly highlighted the similarities within the UK brick manufacturers and these similar characteristics were also evident in the industry SWOT analysis.

The unconventional application of the SWOT analysis to the industry provided useful information about the UK brick industry that could then be adapted and applied to the competitive analysis model. Industry characteristics were identified and external factors related to the economy and politics, social, technological and legal trends were also identified.

The Competitive Analysis model shows, in diagrammatic format, the position of the UK Brick Industry and the characteristics and factors that influence it at present. Regulation, such as the CPD, influences all the factors identified in the model that is why it is not highlighted as a single factor. At present the CPD is not a major influence on the industry and it will only become apparent when there are full European standards in use. The results of the case study interviews conclude that, at present, manufacturers are more concerned with environmental regulation than the CPD.

The SWOT analysis profile and the competitive analysis model for the UK brick industry can both be useful guides for those already in the existing market or those looking to enter the market. However, as with any industry analysis they will need to be reviewed as the market environments change.

6.0 Summary of the Research Conclusions

To summarise, the research findings are as follows:

- The CPD has not had a significant impact on the UK construction products manufacturers and it has had no impact at all on some manufacturers.
- There is no impact on the strategic decisions of the UK brick manufacturers due to the CPD.
- The awareness of the UK construction materials sector and the UK construction industry to the implications of the CPD needs to be raised to ensure that;
 - UK products meet the standards when they are operational
 - Specifiers and contractors know which products are of a required standard and are fit for purpose.
- At present the CPD is not achieving its aim of removing technical barriers to trade and providing a 'level playing field' for construction products.
- The impact of the Directive will not become apparent until full-harmonised European product standards are in place and being used.
- The construction materials sector plays a major part in the construction industry and it is comprised of a wide range of varying product sectors that have different characteristics particular to their product that must be taken into account.
- The most important market entry barriers for the UK brick industry consist of technical and market conditions rather than cost advantages.
- The most suitable market entry strategy for the brick industry and other industries that rely heavily on natural resources and have a high capital investment for production start-up, are exports and through mergers and acquisitions.
- An analysis of the UK brick industry has produced a SWOT matrix and a Competitive Analysis Model that identifies the particular characteristics and factors affecting the industry.

7.0 Contribution to Existing Knowledge

This thesis seeks to fill an existing gap in research. The fact that the Directive is in its infancy and is having implementation problems has led to a lack of literature in this area. Also the construction materials sector has not previously been investigated considering the Directive and strategic decisions to market positioning which has meant that a significant of the background information has come from interviews with professionals who work in the industry or associated bodies. There is substantive material in relation to both the European Union and strategic management theory but very little that is specific to the construction materials sector or the brick industry. The research has adapted and applied existing research and theories to the UK brick industry and the materials sector to highlight characteristics specific to the industry. Both the SWOT analysis and the competitive analysis model have not previously been applied to the UK brick industry.

This research provides a background to this subject for possible future research topics. The fact that the Directive is not working fully due to the lack of harmonised product standards only means that this study is very relevant and will contribute to any future research in this area.

8.0 Recommendation for Further Work and Research

This section will suggest recommendations for further research, some already having been identified:

- Apply the Case Study Interviews to other product groups to analyse their industry structure and market strategies and compare with the brick industry. This would build a picture of the UK materials sector and reduce the need for generalisations across the industry.
- Carry out a similar questionnaire survey when full-harmonised European standards are actually in place to assess the impact of the Directive on the industry.

- Investigate the implications of European standards on the specifiers and contractors. Analysing their awareness of the CPD, what they think a CE marking on a product means, quality and fitness for purpose of products and how they see it impacting on the UK materials sector and the construction industry.
- Enforcement of the Directive is an issue that has been raised by manufacturers but has not been covered in this study and is an area that will become increasingly more important as more European Standards come on line.
- This current research could be applied to one or more European countries to assess their situation with regards to the Directive and how their materials sector and construction industry are dealing with the issues. Any of the above points could also be compared with other European countries.
- The Directive could be investigated across the European Union to assess whether it is meeting its Single Market objective of removing technical trade barriers and whether other 'protectionist' technical barriers are being incorporated into member states.

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APPENDIX A

THE CONSTRUCTION PRODUCTS DIRECTIVE

- 1. Council Directive 89/106/EEC**
- 2. Construction Mandates**

COUNCIL DIRECTIVE

of 21 December 1988

on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products

(89/106/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100a thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

In cooperation with the European Parliament ⁽²⁾,

Having regard to the opinion of the Economic and Social Committee ⁽³⁾,

Whereas Member States are responsible for ensuring that building and civil engineering works on their territory are designed and executed in a way that does not endanger the safety of persons, domestic animals and property, while respecting other essential requirements in the interests of general well-being;

Whereas Member States have provisions, including requirements, relating not only to building safety but also to health, durability, energy economy, protection of the environment, aspects of economy, and other aspects important in the public interest;

Whereas these requirements, which are often the subject of national provisions laid down by law, regulation or administrative action, have a direct influence on the nature of construction products employed and are reflected in national product standards, technical approvals and other technical specifications and provisions which, by their disparity, hinder trade within the Community;

Whereas paragraph 71 of the White Paper on completing the internal market, approved by the European Council in June 1985, states that, within the general policy, particular emphasis will be placed on certain sectors, including construction; whereas the removal of technical barriers in the construction field, to the extent that they cannot be removed by mutual recognition of equivalence among all the Member States, should follow the new approach set out in the Council resolution of 7 May 1985 ⁽⁴⁾ which calls for the definition of

essential requirements on safety and other aspects which are important for the general well-being, without reducing the existing and justified levels of protection in the Member States;

Whereas the essential requirements constitute both the general and specific criteria with which construction works must comply; whereas such requirements are to be understood as requiring that the said works conform with an appropriate degree of reliability with one, some or all of these requirements when and where this is laid down in regulations;

Whereas, as a basis for the harmonized standards or other technical specifications at European level and for the drawing up or granting of European technical approval, interpretative documents will be established in order to give concrete form to the essential requirements at a technical level;

Whereas these essential requirements provide the basis for the preparation of harmonized standards at European level for construction products; whereas, in order to achieve the greatest possible advantage for a single internal market, to afford access to that market for as many manufacturers as possible, to ensure the greatest possible degree of market transparency and to create the conditions for a harmonized system of general rules in the construction industry, harmonized standards should be established as far as, and as quickly as, possible; whereas these standards are drawn up by private bodies and must remain non-mandatory texts; whereas, for that purpose, the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (Cenelec) are recognized as the competent bodies for the adoption of harmonized standards in accordance with the general guidelines for cooperation between the Commission and those two bodies signed on 13 November 1984; whereas, for the purposes of this Directive, a harmonized standard is a technical specification (European standard or harmonized document) adopted by one or both of those bodies upon a mandate given by the Commission in accordance with the provisions of Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations ⁽⁵⁾;

Whereas the special nature of construction products requires the precise formulation of these harmonized standards; whereas it is therefore necessary to draw up interpretative documents in order to establish links between mandates for standards and the essential requirements; whereas harmonized standards, expressed as far as possible in terms

⁽¹⁾ OJ No C 93, 6. 4. 1987, p. 1.

⁽²⁾ OJ No C 305, 16. 11. 1987, p. 74 and OJ No C 326, 19. 12. 1988.

⁽³⁾ OJ No C 95, 11. 4. 1988, p. 29.

⁽⁴⁾ OJ No C 136, 4. 6. 1985, p. 1.

⁽⁵⁾ OJ No L 109, 26. 4. 1983, p. 8.

of product performance, take account of these interpretative documents, which shall be drawn up in cooperation with the Member States;

Whereas performance levels and requirements to be fulfilled by products in future in the Member States shall be laid down in classes in the interpretative documents and in the harmonized technical specifications in order to take account of different levels of essential requirements for certain works and of different conditions prevailing in the Member States;

Whereas harmonized standards should include classifications that allow construction products which meet the essential requirements and which are produced and used lawfully in accordance with technical traditions warranted by local climatological and other conditions to continue to be placed on the market;

Whereas a product is presumed fit for use if it conforms to a harmonized standard, a European technical approval or a non-harmonized technical specification recognized at Community level; whereas, in cases where products are of little importance with respect to the essential requirements and where they deviate from existing technical specifications, their fitness for use can be certified by recourse to an approved body;

Whereas products thus considered fit for use are easily recognizable by the EC mark; whereas they must be allowed free movement and free use for their intended purpose throughout the Community;

Whereas, in the case of products where European standards cannot be produced or foreseen within a reasonable period of time or of products which deviate substantially from a standard, the fitness for use of such products may be proved by recourse to European technical approvals on the basis of common guidelines; whereas the common guidelines for the granting of European technical approvals will be adopted on the basis of the interpretative documents;

Whereas, in the absence of harmonized standards and European technical approvals, national or other non-harmonized technical specifications may be recognized as providing a suitable basis for a presumption that the essential requirements are met;

Whereas it is necessary to ensure the conformity of products with harmonized standards and with non-harmonized technical specifications recognized at European level by means of procedures of production control by manufacturers and of supervision, testing assessment and certification by independent qualified third parties, or by the manufacturer himself;

Whereas a special procedure should be provided as an interim measure for products where standards or technical approvals recognized at European level do not yet exist; whereas this procedure should facilitate recognition of the

results of tests performed in another Member State according to the technical requirements of the Member State of destination;

Whereas a Standing Committee on Construction should be set up comprising experts designated by Member States to assist the Commission on questions arising from the implementation and practical application of this Directive;

Whereas the responsibility of Member States for safety, health and other matters covered by the essential requirements on their territory should be recognized in a safeguard clause providing for appropriate protective measures,

HAS ADOPTED THIS DIRECTIVE:

CHAPTER I

Field of application — Definitions — Requirements — Technical specifications — Free movement of goods

Article 1

1. This Directive shall apply to construction products in so far as the essential requirements in respect of construction works under Article 3 (1) relate to them.
2. For the purposes of this Directive, 'construction product' means any product which is produced for incorporation in a permanent manner in construction works, including both buildings and civil engineering works.

'Construction products' are hereinafter referred to as 'products'; construction works including both buildings and civil engineering works are hereinafter referred to as 'works'.

Article 2

1. Member States shall take all necessary measures to ensure that the products referred to in Article 1, which are intended for use in works, may be placed on the market only if they are fit for this intended use, that is to say they have such characteristics that the works in which they are to be incorporated, assembled, applied or installed, can, if properly designed and built, satisfy the essential requirements referred to in Article 3 when and where such works are subject to regulations containing such requirements.
2. When products are subject to other Community directives with regard to other aspects, the EC conformity mark, hereinafter referred to as the 'EC mark', referred to in Article 4 (2) shall indicate in these cases that the requirements of those other directives have also been complied with.

3. When a future directive concerns mainly other aspects and only to a minor extent the essential requirements of this Directive, that subsequent directive shall contain provisions ensuring that it also covers the requirements of this Directive.

4. This Directive shall not affect the right of Member States to specify — with due observance of the provisions of the Treaty — the requirements they deem necessary to ensure that workers are protected when using products, provided it does not mean the products are modified in a way unspecified in this Directive.

Article 3

1. The essential requirements applicable to works which may influence the technical characteristics of a product are set out in terms of objectives in Annex I. One, some or all of these requirements may apply; they shall be satisfied during an economically reasonable working life.

2. In order to take account of possible differences in geographical or climatic conditions or in ways of life as well as different levels of protection that may prevail at national, regional or local level, each essential requirement may give rise to the establishment of classes in the documents referred to in paragraph 3 and the technical specifications referred to in Article 4 for the requirement to be respected.

3. The essential requirements shall be given concrete form in documents (interpretative documents) for the creation of the necessary links between the essential requirements laid down in paragraph 1 and the standardization mandates, mandates for guidelines for European technical approval or the recognition of other technical specifications within the meaning of Articles 4 and 5.

Article 4

1. Standards and technical approvals shall, for the purposes of this Directive, be referred to as 'technical specifications'.

For the purposes of this Directive, harmonized standards shall be the technical specifications adopted by CEN, Cenelec or both, on mandates given by the Commission in conformity with Directive 83/189/EEC on the basis of an opinion given by the Committee referred to in Article 19 and in accordance with the general provisions concerning cooperation between the Commission and these two bodies signed on 13 November 1984.

2. Member States shall presume that the products are fit for their intended use if they enable works in which they are employed, provided the latter are properly designed and

built, to satisfy the essential requirements referred to in Article 3, and those products bear the EC mark. The EC mark shall indicate:

- (a) that they comply with the relevant national standards transposing the harmonized standards, references to which have been published in the *Official Journal of the European Communities*. Member States shall publish the references of these national standards;
- (b) that they comply with a European technical approval, delivered according to the procedure of Chapter III, or
- (c) that they comply with the national technical specifications referred to in paragraph 3 in as much as harmonized specifications do not exist; a list of these national specifications shall be drawn up according to the procedure in Article 5 (2).

3. Member States may communicate to the Commission the texts of their national technical specifications which they regard as complying with the essential requirements referred to in Article 3. The Commission shall forward these national technical specifications forthwith to the other Member States. In accordance with the procedure provided for in Article 5 (2), it shall notify the Member States of those national technical specifications in respect of which there is presumption of conformity with the essential requirements referred to in Article 3.

This procedure will be initiated and managed by the Commission in consultation with the committee referred to in Article 19.

Member States shall publish the references to these technical specifications. The Commission shall also publish them in the *Official Journal of the European Communities*.

4. Where a manufacturer, or his agent, established in the Community, has not applied, or has applied only in part, the existing technical specifications referred to in paragraph 2, which require, according to the criteria set out in Article 13 (4), the product to be submitted for a declaration of conformity as defined in Annex III (2) (ii), second and third possibilities, the corresponding decisions under Article 13 (4) and Annex III shall apply and such a product's fitness for use within the meaning of Article 2 (1) shall be established in accordance with the procedure set out in Annex III (2) (ii), second possibility.

5. The Commission, in consultation with the committee referred to in Article 19, shall draw up, manage and revise periodically a list of products which play a minor part with respect to health and safety and in respect of which a declaration of compliance with the 'acknowledged rule of technology', issued by the manufacturer, will authorize such products to be placed on the market.

6. The EC mark signifies that products satisfy the requirements of paragraphs 2 and 4 of this Article. It is for the

manufacturer, or his agent established in the Community, to take responsibility for affixing the EC mark on the product itself, on a label attached to it, on its packaging, or on the accompanying commercial documents.

The model of the EC mark and conditions of its use are given in Annex III.

Products referred to in paragraph 5 shall not bear the EC mark.

Article 5

1. Where a Member State or the Commission is of the opinion that the harmonized standards or European technical approvals referred to in Article 4 (2), points (a) and (b), or the mandates referred to in Chapter II, do not satisfy the provisions of Articles 2 and 3, that Member State or the Commission shall notify the committee referred to in Article 19, setting out its reasons. The committee shall deliver an urgent opinion.

In the light of the opinion of the committee, and after consultation with the committee set up under Directive 83/189/EEC where it concerns harmonized standards, the Commission shall inform Member States if the standards or approvals concerned should be withdrawn in the publications referred to in Article 7 (3).

2. On reception of the communication referred to in Article 4 (3), the Commission shall consult the committee referred to in Article 19. In the light of the opinion of the committee, the Commission shall notify Member States whether the technical specification in question should benefit from the presumption of conformity and, if so, publish a reference to it in the *Official Journal of the European Communities*.

If the Commission or a Member State believes that a technical specification no longer fulfills the conditions necessary for presumption of conformity with the provisions of Articles 2 and 3, the Commission shall consult the committee referred to in Article 19. In the light of the opinion of the said committee, the Commission shall notify the Member States whether the national technical specification in question should continue to benefit from presumption of conformity, and, if not, whether the reference to it referred to in Article 4 (3) should be withdrawn.

Article 6

1. Member States shall not impede the free movement, placing on the market or use in their territory of products which satisfy the provisions of this Directive.

Member States shall ensure that the use of such products, for the purpose for which they were intended, shall not be impeded by rules or conditions imposed by public bodies or

private bodies acting as a public undertaking or acting as a public body on the basis of a monopoly position.

2. Member States shall, however, allow products not covered by Article 4 (2) to be placed on the market in their territory if they satisfy national provisions consistent with the Treaty until the European technical specifications referred to in Chapters II and III provide otherwise. The Commission and the committee referred to in Article 19 will monitor and review the development of the European technical specifications on a regular basis.

3. If the relevant European technical specifications, either themselves or on the basis of the interpretative documents referred to in Article 3 (3), distinguish between different classes corresponding to different performance levels, Member States may determine the performance levels also to be observed in their territory only within the classifications adopted at Community level and only subject to the use of all or some classes or one class.

CHAPTER II

Harmonized standards

Article 7

1. In order to ensure the quality of harmonized standards for products, the standards shall be established by the European standards organizations on the basis of mandates given by the Commission in accordance with the procedure laid down in Directive 83/189/EEC and, after consulting the committee referred to in Article 19, in accordance with the general provisions concerning cooperation between the Commission and these bodies signed on 13 November 1984.

2. The resulting standards shall be expressed as far as practicable in product performance terms, having regard to the interpretative documents.

3. Once the standards have been established by the European standards organizations, the Commission shall publish the references of the standards in the 'C' series of the *Official Journal of the European Communities*.

CHAPTER III

European technical approval

Article 8

1. European technical approval is a favourable technical assessment of the fitness for use of a product for an intended use, based on fulfilment of the essential requirements for building works for which the product is used.

2. European technical approval may be granted to:
- (a) products for which there is neither a harmonized standard, nor a recognized national standard, nor a mandate for a harmonized standard, and for which the Commission, after consulting the committee referred to in Article 19, considers that a standard could not, or not yet, be elaborated; and
 - (b) products which differ significantly from harmonized or recognized national standards.

Even in the case where a mandate for a harmonized standard has been issued, the provisions referred to in (a) do not exclude the granting of European technical approval for products for which guidelines for such approval exist. This shall apply until the entry into force of the harmonized standard in the Member States.

3. In special cases, the Commission may, as a derogation from paragraph 2 (a), authorize the issue of European technical approval, after consulting the committee referred to in Article 19, for products for which there is a mandate for a harmonized standard, or for which the Commission has established that a harmonized standard can be elaborated. The authorization shall be valid for a fixed period.

4. European technical approval shall in general be issued for a five-year period. This period may be extended.

Article 9

1. European technical approval for a product shall be based on examinations, tests and an assessment on the basis of the interpretative documents referred to in Article 3 (3) and of the guidelines referred to in Article 11 for this product or the corresponding family of products.

2. Where guidelines referred to in Article 11 do not or not yet exist, European technical approval may be issued by reference to the relevant essential requirements and the interpretative documents where the assessment of the product is adopted by the approval bodies acting jointly in the organization referred to in Annex II. If the approval bodies cannot agree, the matter shall be referred to the committee referred to in Article 19.

3. The European technical approval for a product shall be issued in a Member State in accordance with the procedure laid down in Annex II at the request of the manufacturer or his agent established in the Community.

Article 10

1. Each Member State shall notify the other Member States and the Commission of the names and addresses of the bodies which it has authorized to issue European technical approvals.

2. The approval bodies must satisfy the requirements of this Directive and in particular must be able:

- to assess the fitness for use of new products on the basis of scientific and practical knowledge,
- to take impartial decisions in relation to the interests of the manufacturers concerned or their agents, and
- to collate the contributions of all the interested parties in a balanced assessment.

3. The list of approval bodies which are competent to issue European technical approvals, as well as any amendments to that list, shall be published in the 'C' series of the *Official Journal of the European Communities*.

Article 11

1. The Commission shall, after consulting the committee referred to in Article 19, issue mandates for establishing guidelines for European technical approval for a product or family of products to the organization of approval bodies designated by the Member States.

2. The guidelines for European technical approval for a product or family of products should contain the following, in particular:

- (a) a list of the relevant interpretative documents referred to in Article 3 (3);
- (b) specific requirements for the products within the meaning of the essential requirements referred to in Article 3 (1);
- (c) the test procedures;
- (d) method of assessing and judging the results of the tests;
- (e) the inspection and conformity procedures which must correspond to Articles 13, 14 and 15;
- (f) the period of validity of the European technical approval.

3. The guidelines for European technical approval shall, after consultation with the committee referred to in Article 19, be published by the Member States in their official language or languages.

CHAPTER IV

Interpretative documents

Article 12

1. The Commission shall, after consulting the committee referred to in Article 19, instruct technical committees in

which the Member States participate to draw up the interpretative documents referred to in Article 3 (3).

2. The interpretative documents shall:

- (a) give concrete form to the essential requirements laid down in Article 3 and in Annex I by harmonizing the terminology and the technical bases and indicating classes or levels for each requirement where necessary and where the state of scientific and technical knowledge so permits;
- (b) indicate methods of correlating these classes or levels of requirement with the technical specifications referred to in Article 4, for example, methods of calculation and of proof, technical rules for project design, etc.;
- (c) serve as a reference for the establishment of harmonized standards and guidelines for European technical approval and for recognition of national technical specifications in accordance with Article 4 (3).

3. The Commission shall publish the interpretative documents in the 'C' series of the *Official Journal of the European Communities* after soliciting the opinion of the committee referred to in Article 19.

CHAPTER V

Attestation of conformity

Article 13

1. The manufacturer, or his agent established in the Community, shall be responsible for the attestation that products are in conformity with the requirements of a technical specification within the meaning of Article 4.
2. Products that are the subject of an attestation of conformity shall benefit from the presumption of conformity with technical specifications within the meaning of Article 4. Conformity shall be established by means of testing or other evidence on the basis of the technical specifications in accordance with Annex III.
3. The attestation of conformity of a product is dependent on:
 - (a) the manufacturer having a factory production control system to ensure that production conforms with the relevant technical specifications; or
 - (b) for particular products indicated in the relevant technical specifications, in addition to a factory production control system, an approved certification body being involved in assessment and surveillance of the production control or of the product itself.

4. The choice of the procedure within the meaning of paragraph 3 for a given product or family of products shall be specified by the Commission, after consultation of the committee referred to in Article 19, according to:

- (a) the importance of the part played by the product with respect to the essential requirements, in particular those relating to health and safety;
- (b) the nature of the product;
- (c) the effect of the variability of the product's characteristics on its serviceability;
- (d) the susceptibility to defects in the product manufacture;

in accordance with the particulars set out in Annex III.

In each case, the least onerous possible procedure consistent with safety shall be chosen.

The procedure thus determined shall be indicated in the mandates and in the technical specifications or in the publication thereof.

5. In the case of individual (and non-series) production, a declaration of conformity in accordance with Annex III (2) (ii), third possibility, shall suffice, unless otherwise provided by the technical specifications for products which have particularly important implications for health and safety.

Article 14

1. In accordance with Annex III, the procedures described shall lead:
 - (a) in the case of Article 13 (3) (a), to the production of a declaration of conformity for a product by the manufacturer, or his agent established in the Community; or
 - (b) in the case of Article 13 (3) (b), to the issue by an approved certification body of a certificate of conformity for a system of production control and surveillance or for the product itself.

Detailed rules for the implementation of the procedures of attestation of conformity are given in Annex III.

2. The manufacturer's declaration of conformity or the certificate of conformity shall entitle the manufacturer, or his agent established in the Community, to affix the corresponding EC mark on the product itself, on a label attached to it, on its packaging or on the accompanying commercial documents. The model of the EC mark and the rules for its use in respect of each of the procedures of attestation of conformity are given in Annex III.

Article 15

1. Member States shall ensure that the EC mark is correctly used.
2. Where it is established that the EC mark has been affixed to a product which does not satisfy, or no longer satisfies, this Directive, the Member State in which conformity was attested shall ensure that, if necessary, the use of the EC mark is forbidden and unsold products are withdrawn, or marks obliterated, until such time as the product concerned is brought back to conformity.

The Member State concerned shall immediately inform the other Member States and the Commission, giving all the qualitative and quantitative details necessary to identify the product which does not conform.

3. Member States shall ensure that the affixing to products or their packing of marks which are likely to be confused with the EC mark shall be prohibited.

CHAPTER VI

Special procedures

Article 16

1. In the absence of technical specifications, as defined in Article 4, for any given product, the Member State of destination shall, on request in individual cases, consider the product to be in conformity with the national provisions in force if they have satisfied tests and inspections carried out by an approved body in the producing Member State according to the methods in force in the Member State of destination or recognized as equivalent by that Member State.
2. The producing Member State shall inform the Member State of destination, in accordance with whose provisions the tests and inspections are to be carried out, of the body it intends to approve for this purpose. The Member State of destination and the producing Member State shall provide each other with all necessary information. On conclusion of this exchange of information the producing Member State shall approve the body thus designated. If a Member State has misgivings, it shall substantiate its position and inform the Commission.
3. Member States shall ensure that the designated bodies afford one another all necessary assistance.
4. Where a Member State establishes that an approved body is not carrying out the tests and inspections properly in conformity with its national provisions, it shall notify the Member State in which the body is approved thereof. That Member State shall inform the notifying Member State

within a reasonable time limit of what action has been taken. If the notifying Member State does not consider the action taken to be sufficient, it may prohibit the placing on the market and use of the product in question or make it subject to special conditions. It shall inform the other Member State and the Commission thereof.

Article 17

Member States of destination shall attach the same value to reports and attestations of conformity issued in the producing Member State in accordance with the procedure referred to in Article 16, as they do to their own corresponding national documents.

CHAPTER VII

Approved bodies

Article 18

1. Each Member State shall forward to the Commission a list of names and addresses of certification bodies, inspection bodies and testing laboratories which have been designated by that Member State for tasks to be carried out for the purposes of technical approvals, conformity certifications, inspections and tests according to this Directive.
2. Certification bodies, inspection bodies and testing laboratories shall comply with the criteria laid down in Annex IV.
3. Member States shall indicate the products which fall within the competence of the bodies and laboratories referred to in paragraph 1 and the nature of the tasks to be assigned to them.

CHAPTER VIII

Standing Committee on Construction

Article 19

1. A Standing Committee on Construction is hereby set up.
2. The committee shall be made up of representatives appointed by the Member States. It shall be chaired by a representative of the Commission. Each Member State shall appoint two representatives. The representatives may be accompanied by experts.
3. The committee shall draw up its own rules of procedure.

Article 20

1. The committee referred to in Article 19 may, at the request of its chairman or a Member State, examine any question posed by the implementation and the practical application of this Directive.

2. The provisions necessary for:

- (a) the establishment of classes of requirements in so far as they are not included in the interpretative documents and the establishment of the procedure for attesting conformity in mandates for standards pursuant to Article 7 (1) and guidelines for approvals pursuant to Article 11 (1);
- (b) the giving of instructions for the drawing-up of interpretative documents pursuant to Article 12 (1) and decisions on interpretative documents pursuant to Article 12 (3);
- (c) the recognition of national technical specifications in accordance with Article 4 (3);

shall be adopted in accordance with the procedure laid down in paragraphs 3 and 4.

3. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148 (2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the committee shall be weighted in the manner set out in that Article. The chairman shall not vote.

4. The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the committee.

If the measures envisaged are not in accordance with the opinion of the committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by qualified majority.

If, within three months of the proposal being submitted to it, the Council has not acted, the proposed measures shall be adopted by the Commission.

CHAPTER IX

Safeguard clause

Article 21

1. Where a Member State ascertains that a product declared to be in conformity with the terms of this Directive

does not comply with Articles 2 and 3, it shall take all appropriate measures to withdraw those products from the market, prohibit the placing thereof on the market or restrict free movement thereof.

The Member State concerned shall immediately inform the Commission of any such measure, indicating the reasons for its decision, and in particular whether non-conformity is due to:

- (a) failure to comply with Articles 2 and 3, where the product does not meet the technical specifications referred to in Article 4;
- (b) incorrect application of the technical specifications referred to in Article 4;
- (c) shortcomings in the technical specifications referred to in Article 4 themselves.

2. The Commission shall carry out a consultation of the parties concerned as soon as possible. Where the Commission finds, after this consultation, that the action is justified, it shall immediately so inform the Member State that took the action as well as the other Member States.

3. Where the decision referred to in paragraph 1 is attributed to shortcomings in the standards or technical specifications, the Commission, after consulting the parties concerned, shall bring the matter before the committee referred to in Article 19, as well as the committee set up under Directive 83/189/EEC in the case of shortcomings in a harmonized standard, within two months if the Member State which has taken the measures intends to uphold them, and shall start the procedures referred to in Article 5 (2).

4. The Member State concerned shall take appropriate action against whomsoever made the declaration of conformity and shall inform the Commission and the other Member States thereof.

5. The Commission shall ensure that the Member States are kept informed of the progress and outcome of this procedure.

CHAPTER X

Final provisions

Article 22

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with the provisions of this Directive within 30 months of its notification⁽¹⁾. They shall forthwith inform the Commission thereof.

⁽¹⁾ This Directive was notified to the Member States on 27 December 1988.

2. Member States shall communicate to the Commission the texts of the provisions of national law which they adopt in the field governed by this Directive.

Article 23

At the latest by 31 December 1993, the Commission, in consultation with the committee referred to in Article 19, shall re-examine the practicability of the procedures laid down by this Directive and, where necessary, submit proposals for appropriate amendments.

Article 24

This Directive is addressed to the Member States.

Done at Brussels, 21 December 1988.

For the Council

The President

V. PAPANDREOU

ANNEX I

ESSENTIAL REQUIREMENTS

The products must be suitable for construction works which (as a whole and in their separate parts) are fit for their intended use, account being taken of economy, and in this connection satisfy the following essential requirements where the works are subject to regulations containing such requirements. Such requirements must, subject to normal maintenance, be satisfied for an economically reasonable working life. The requirements generally concern actions which are foreseeable.

1. Mechanical resistance and stability

The construction works must be designed and built in such a way that the loadings that are liable to act on it during its construction and use will not lead to any of the following:

- (a) collapse of the whole or part of the work;
- (b) major deformations to an inadmissible degree;
- (c) damage to other parts of the works or to fittings or installed equipment as a result of major deformation of the load-bearing construction;
- (d) damage by an event to an extent disproportionate to the original cause.

2. Safety in case of fire

The construction works must be designed and built in such a way that in the event of an outbreak of fire:

- the load-bearing capacity of the construction can be assumed for a specific period of time,
- the generation and spread of fire and smoke within the works are limited,
- the spread of the fire to neighbouring construction works is limited,
- occupants can leave the works or be rescued by other means,
- the safety of rescue teams is taken into consideration.

3. Hygiene, health and the environment

The construction work must be designed and built in such a way that it will not be a threat to the hygiene or health of the occupants or neighbours, in particular as a result of any of the following:

- the giving-off of toxic gas,
- the presence of dangerous particles or gases in the air,
- the emission of dangerous radiation,
- pollution or poisoning of the water or soil,
- faulty elimination of waste water, smoke, solid or liquid wastes,
- the presence of damp in parts of the works or on surfaces within the works.

4. Safety in use

The construction work must be designed and built in such a way that it does not present unacceptable risks of accidents in service or in operation such as slipping, falling, collision, burns, electrocution, injury from explosion.

5. Protection against noise

The construction works must be designed and built in such a way that noise perceived by the occupants or people nearby is kept down to a level that will not threaten their health and will allow them to sleep, rest and work in satisfactory conditions.

6. Energy economy and heat retention

The construction works and its heating, cooling and ventilation installations must be designed and built in such a way that the amount of energy required in use shall be low, having regard to the climatic conditions of the location and the occupants.

ANNEX II

EUROPEAN TECHNICAL APPROVAL

1. A request for approval may be made by a manufacturer, or his agent established in the Community, only to a single body authorized for this purpose.
2. The approval bodies designated by the Member States form an organization. In the performance of its duties, this organization is obliged to work in close coordination with the Commission, which shall consult the committee referred to in Article 19 of the Directive on important matters. Where a Member State has designated more than one approval body, the Member State shall be responsible for coordinating such bodies; it shall also designate the body which shall be spokesman in the organization.
3. The common procedural rules for making the request, the preparation and the granting of approvals are drawn up by the organization comprising the designated approval bodies. The common procedural rules are adopted by the Commission on the basis of the opinion of the committee in accordance with Article 20.
4. In the framework of the organization comprising them, the approval bodies shall afford each other all necessary support. This organization is also responsible for coordination on specific questions of technical approval. If necessary, the organization shall establish sub-groups for this purpose.
5. The European technical approvals are published by the approval bodies, which notify all other approved bodies. At the request of an authorized approval body, a complete set of supporting documents for an approval which has been granted is to be forwarded to the latter for information.
6. The costs arising from the European technical approval procedure shall be paid by the applicant in accordance with national rules.

ANNEX III

ATTESTATION OF CONFORMITY WITH TECHNICAL SPECIFICATIONS

1. METHODS OF CONTROL OF CONFORMITY

When the procedures for attestation of conformity of a product with technical specifications pursuant to Article 13 are being determined, the following methods of control of conformity shall be used; the choice and combination of methods for any given system shall depend on requirements for the particular product or group of products according to the criteria indicated in Article 13 (3) and (4):

- (a) initial type-testing of the product by the manufacturer or an approved body;
- (b) testing of samples taken at the factory in accordance with a prescribed test plan by the manufacturer or an approved body;
- (c) audit-testing of samples taken at the factory, on the open market or on a construction site by the manufacturer or an approved body;
- (d) testing of samples from a batch which is ready for delivery, or has been delivered, by the manufacturer or an approved body;
- (e) factory production control;
- (f) initial inspection of factory and of factory production control by an approved body;
- (g) continuous surveillance, judgement and assessment of factory production control by an approved body.

In the Directive, factory production control means the permanent internal control of production exercised by the manufacturer. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. This production control system documentation shall ensure a common understanding of quality assurance and enable the achievement of the required product characteristics and the effective operation of the production control system to be checked.

2. SYSTEMS OF CONFORMITY ATTESTATION

Preference is given to application of the following systems of conformity attestation.

(i) Certification of the conformity of the product by an approved certification body on the basis of:

(a) *(tasks for the manufacturer)*

- (1) factory production control;
- (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;

(b) *(tasks for the approved body)*

- (3) initial type-testing of the product;
- (4) initial inspection of factory and of factory production control;
- (5) continuous surveillance, assessment and approval of factory production control;
- (6) possibly, audit-testing of samples taken at the factory, on the market or on the construction site.

(ii) Declaration of conformity of the product by the manufacturer on the basis of:

First possibility:

(a) *(tasks for the manufacturer)*

- (1) initial type-testing of the product;
- (2) factory production control;
- (3) possibly, testing of samples taken at the factory in accordance with a prescribed test plan;

(b) *(tasks for the approved body)*

(4) certification of factory production control on the basis of:

- initial inspection of factory and of factory production control,
- possibly, continuous surveillance, assessment and approval of factory production control.

Second possibility:

- (1) initial type-testing of the product by an approved laboratory;
- (2) factory production control.

Third possibility:

- (a) initial type-testing by the manufacturer;
- (b) factory production control.

3. BODIES INVOLVED IN THE ATTESTATION OF CONFORMITY

With respect to the function of the bodies involved in the attestation of conformity, distinction shall be made between

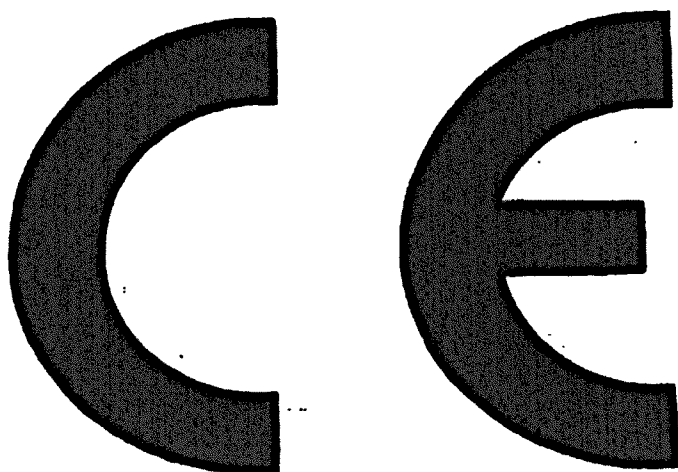
- (i) *certification body*, which means an impartial body, governmental or non-governmental, possessing the necessary competence and responsibility to carry out conformity certification according to given rules of procedure and management;
- (ii) *inspection body*, which means an impartial body having the organization, staffing, competence and integrity to perform according to specified criteria functions such as assessing, recommending for acceptance and subsequent audit of manufacturers' quality control operations, and selection and evaluation of products on site or in factories or elsewhere, according to specific criteria;
- (iii) *testing laboratory*, which means a laboratory which measures, examines, tests, calibrates or otherwise determines the characteristics or performance of materials or products.

In case (i) and (ii) (first possibility) of paragraph 2, the three functions 3 (i) to (iii) may be performed by one and the same body or by different bodies, in which case the inspection body and/or the testing laboratory involved in the attestation of conformity carries out its function on behalf of the certification body.

For the criteria concerning the competence, impartiality and integrity of certification bodies, inspection bodies and testing laboratories, see Annex IV.

4. EC CONFORMITY MARK, EC CERTIFICATE OF CONFORMITY, EC DECLARATION OF CONFORMITY**4.1. EC conformity mark**

The EC conformity mark shall consist of the symbol CE as given below.



It shall be accompanied by:

- the name or identifying mark of the producer, and, where appropriate:
- indications to identify the characteristics of the product, where appropriate to technical specifications,
- the last two digits of the year of manufacture,
- the identification symbol of the inspection body involved,
- the number of the EC certificate of conformity.

4.2. EC certificate of conformity

The EC certificate of conformity shall contain in particular:

- name and address of the certification body,
- name and address of the manufacturer or his agent established in the Community,
- description of the product (type, identification, use . . .),
- provisions to which the product conforms,
- particular conditions applicable to the use of the product,
- the certificate's number,
- conditions and period of validity of the certificate, where applicable,
- name of, and position held by, the person empowered to sign the certificate.

4.3. EC declaration of conformity

The EC declaration of conformity shall contain in particular:

- name and address of the manufacturer or his agent established in the Community,
- description of the product (type, identification, use . . .),
- provision to which the product conforms,
- particular conditions applicable to the use of the product,
- name and address of the approved body, where applicable,
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorized representative.

4.4. The certificate and declaration of conformity shall be presented in the official language or languages of the Member State in which the product is to be used.

ANNEX IV**APPROVAL OF TESTING LABORATORIES, INSPECTION BODIES AND CERTIFICATION BODIES**

The testing laboratories, the inspection bodies and the certification bodies designated by the Member States must fulfil the following minimum conditions:

1. availability of personnel and of the necessary means and equipment;
2. technical competence and professional integrity of personnel;
3. impartiality, in carrying out the tests, preparing the reports, issuing the certificates and performing the surveillance provided for in the Directive, of staff and technical personnel in relation to all circles, groups or persons directly or indirectly concerned with construction products;
4. maintenance of professional secrecy by personnel;
5. subscription of a civil liability insurance unless that liability is covered by the State under national law.

Fulfilment of the conditions under 1 and 2 shall be verified at intervals by the competent authorities of Member States.

Construction Mandates

These cover the standardisation requirements of the Construction Products Directive.

1. Floor beds (including suspended ground floors), roads and other trafficked areas.
2. Foundations and retaining walls.
3. Pile Foundations.
4. External walls (including claddings), internal walls and partitions.
5. Floors, galleries and ceilings.
6. Prefabricated systems for floors and galleries, stairs, ramps, raised access floors, balustrades and handrails including external works.
7. Roofs
8. Frame (including chimneys and shafts).
9. External and internal doors and windows, roof openings and roof lights (including fire doors and shutters).
10. Suspended ceilings.
11. External finishes of walls.
12. Internal finishes of walls and partitions.
13. Floors and stairs finishes.
14. Ceilings finishes.
15. Roof finishes.
16. Water heaters.
17. Disposal of solid waste (refuse).
18. Drainage (including highways) and disposal of other liquid and gaseous waste.
19. Supply of hot and cold water.
20. Supply of fuels, oil and other liquids.
21. Fire suppression and extinguishing systems.
22. Supply of gases, pressure and vacuum systems.
23. Space heating, cooling and air conditioning (including mechanical and natural ventilation and smoke extraction).
24. Supply of electricity.
25. Lighting.
26. Communications.
27. Transport lifts, hoists, escalators and conveyors.

- 28.** Fire detection and alarm.
- 29.** Lightning protection.
- 30.** Circulation fixtures.
- 31.** Culinary fixtures.
- 32.** Sanitary and cleaning fixtures.
- 33.** Storage fixtures.

APPENDIX B

INITIAL INTERVIEWS

&

QUESTIONNAIRE SURVEY

- 1. Interview Documents**
- 2. Details of Interviewees**
- 3. Questionnaire Documents**
- 4. Survey Analysis Report sent to Manufacturers who requested a copy of the results.**
- 5. Questionnaire Date and Analysis**

Research Questions to the Product Manufacturers

1. What is the Company's involvement in the CPD?
 - CEN Technical Committees
 - BSI Committees
 - Trade Associations, etc.
2. What do the Company see as being the effects of the CPD?
3. Has the Company a strategy for Europe?
 - looking to new, larger markets
 - protecting the home market
 - increasing domestic market share, etc.
3. Is this due to the harmonisation of standards or is it purely a commercial decision?
4. What is the history of the company in Europe?
 - When did it become involved?
 - Does it have links with European firms?
 - Offices in other countries, etc.?
5. Do you see the UK market becoming more competitive with an influx of European manufacturers, the UK already being a fairly open market?
6. Do you see there being a problem from manufacturers outside the EU who affix the CE marking illegally, or have a product that meets the minimum essential requirements and marketing it, possibly taking a percentage of the market before the enforcement agencies can act?
7. What do you see as the short-term future for the construction product industry?
8. What do you see as the long-term future for the construction product industry?
9. Is your Company looking to other markets worldwide rather than just/or Europe?

Names and Addresses of Interviewees**Mr B. Waldron**

Pilkington Glass Ltd
Prescot Road
St. Helens
Merseyside WA10 3TT

Dr K. Fisher

Redland Bricks Ltd
Newcastle-Under-Lyme
Staffordshire
(Taken-over by Ibstock)

Dr J. Nuttall

IMI Yorkshire Copper Tube Ltd
East Lancs Road
Kirkby
Merseyside L33 7TU

Mr J. Nichols

The Rugby Group plc
Crown House
Rugby CV21 2DT
(Taken-over by RMC Group)

Mr K. Richards

Torvale Building Products
Pembroke
Leominster
Herefordshire HR6 9LA
(Ceased Trading)

Mr A. Davies

National Building Materials Producers
Association
26 Stores Street
London
WC1E 7BT

Dr H. Davies and Mr T. Newman

Building Research Establishment
Bucknalls Lane
Garston
Watford WD2 7SR

Mr A. Thomas

British Board of Agrément
Bucknalls Lane
Garston
Watford WD2 7SR

Mr A. Beaumont

British Standards Institute
2 Park Street
London W1A 2BS

Mr T. Nawas

Construction Products & Materials
Sponsorship Division
Department of Environment (DETR)
2 Marsham Street
London SW1P 3EB

Cover Letter for the Questionnaire Survey

Code

Date

Dear Sir or Madam,

The European Construction Products Directive (CPD) was implemented into UK legislation as the Construction Products Regulations in 1991 and is aimed at harmonising product standards to aid the free movement of goods around Europe.

The industry is now entering a new millennium and there are still no full European Standards for construction products under the CPD. As part of a registered research programme towards a PhD, I am investigating into the impact this Directive has had on UK Construction Product Manufacturers and the implications on their market environment.

I would be extremely grateful if you could complete the enclosed confidential questionnaire and return it in the pre-paid envelope provided within the next few days. The questionnaire has been piloted and should take less than five minutes to complete. As the construction products industry is vast, six product groups have been chosen to sample. This means that the survey size is relatively small and it is therefore very important to the validity of the research that I receive as many replies as possible. In compiling the survey sample I have been helped by the National Council of Building Material Producers and the relevant Trade Associations who will be supplied with a copy of the survey results.

If you do not wish to take part in the survey I would be grateful if you could tick one of the boxes below and return this letter in the prepaid envelope.

a) Does not apply to my company

b) Does not apply to my product

c) Do not have the time

d) Other (please specify)

I would like to thank you very much for your time. If you would like any further information on this research or the subject, please do not hesitate to contact me at the address given below.

Yours sincerely,

Fiona Borthwick
HND/C Programme Leader

Encs

**TECHNICAL
QUESTIONNAIRE**

**CONFIDENTIAL QUESTIONNAIRE TO SURVEY ATTITUDES OF UK
CONSTRUCTION PRODUCT MANUFACTURERS ON THE IMPACT OF THE
EUROPEAN CONSTRUCTION PRODUCTS DIRECTIVE**

Instructions

Please complete all questions by placing a tick in the relevant box, e.g.

SECTION 1 : EUROPEAN AWARENESS

1. Is your company aware of any of the:

	Yes	No
a) European Single Market measures, e.g. changes to border controls?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
b) Breakdown of barriers to trade?	<input type="checkbox"/> 1	<input type="checkbox"/> 2

2. Is your company aware of the:

a) European Construction Products Directive?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
b) UK Construction Products Regulations?	<input type="checkbox"/> 1	<input type="checkbox"/> 2

3. When did your company first become aware of :

a) The Construction Products Directive				
Before 1992	1992 - 1994	1995 - 1997	1998 - 1999	
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	
b) The Construction Products Regulations				
Before 1992	1992 - 1994	1995 - 1997	1998 - 1999	
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	

4. What do you expect will be the effect of the Construction Products Directive on your product in :

	Not at all	A little	Quite a lot	A great deal
a) the domestic market	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b) the EU markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

AWARE		COMPLY	
<input type="checkbox"/> 1	Pressure Equipment Directive	<input type="checkbox"/> 2	
<input type="checkbox"/>	Electromagnetic Compatibility Directive	<input type="checkbox"/>	
<input type="checkbox"/>	Hot Water Boilers Directive	<input type="checkbox"/>	
<input type="checkbox"/>	Machinery Directive	<input type="checkbox"/>	
<input type="checkbox"/>	General Product Safety Directive	<input type="checkbox"/>	
<input type="checkbox"/>	Packaging and Packaging Waste Directive	<input type="checkbox"/>	
<input type="checkbox"/>	CE Marking Directive	<input type="checkbox"/>	
<input type="checkbox"/>	Others	<input type="checkbox"/>	

If others, name _____

OFFICE USE

Group Code

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

Case

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

SECTION 2 : THE CONSTRUCTION PRODUCTS DIRECTIVE

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive? Yes 1 No 2
7. If yes, are you involved in: Yes 1 No 2
- a) British Technical Standards Committees 1 2
 - b) European Technical Standards Committees 1 2
 - c) British Trade Organisations 1 2
 - d) European Trade Organisations 1 2
 - d) Others 1 2

If others, name _____

8. Does your company see the Directive as causing a **THREAT** by :

	Not at all	A little	Quite a lot	A great deal
Stronger standards	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Weaker standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increasing competition at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increasing competition abroad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Needing to entering new markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enforcement problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Does your company see the Directive an **OPPORTUNITY** due to :

	Not at all	A little	Quite a lot	A great deal
Stronger standards	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Weaker standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increasing competition at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increasing competition abroad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Needing to entering new markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enforcement problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. How important to your product do you foresee the measures of the Directive being?

	Not at all	A little	Quite a lot	A great deal
New European Standards/ European Technical Approvals	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
New Conformity Procedures (Testing/Certification)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

SECTION 3 : MARKET ENVIRONMENT

11. Has the Directive changed your business environment? Not at all 1 A little 2 Quite a lot 3 A great deal 4
12. Has the Directive led to a change in your firms market strategy? Yes 1 No 2
- a) If yes, would your company have changed the strategy even without the introduction of the Directive? 1 2

13. Is your company involved in any of these markets?

	Before 1992	1992 - 1999
UK	<input type="checkbox"/> 1	<input type="checkbox"/> 2
EU	<input type="checkbox"/>	<input type="checkbox"/>
EFTA	<input type="checkbox"/>	<input type="checkbox"/>
Rest of Europe	<input type="checkbox"/>	<input type="checkbox"/>
Others	<input type="checkbox"/>	<input type="checkbox"/>

If others, name

14. Is your company looking at entering new markets?

	New Home Markets	EU	EFTA	Rest of Europe	Others
Due to the Directive	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Due to Single European Market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If other reasons, name

15. Does your company believe it should have more support from :

	Yes	No
UK Government	<input type="checkbox"/> 1	<input type="checkbox"/> 2
European Commission	<input type="checkbox"/> 1	<input type="checkbox"/> 2

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

COST					IMPORTANCE			
Not at all	A little	Quite a lot	A great deal		Not at all	A little	Quite a lot	A great deal
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conforming to ENs/ETAs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Testing Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Quality Assurances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Production Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Affixing the CE Marking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Investment in Standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Committees				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Investment in R&D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Re-organisation of company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Market Structure - Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Market Structure - Abroad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 4 : BACKGROUND INFORMATION

17. How many people did your company employ last year?

1-10	10-20	20-30	30-50	50-100	100-500	>500
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

18. Is your company a subsidiary of another company?

Yes	No
<input type="checkbox"/> 1	<input type="checkbox"/> 2

THANK YOU FOR YOUR TIME AND CO-OPERATION IN COMPLETING THIS QUESTIONNAIRE.

RESPONDENT DETAILS:

Name: _____

Position: _____

If you would like to receive a copy of the results, please tick this box:

**MARKETING
QUESTIONNAIRE**

**CONFIDENTIAL QUESTIONNAIRE TO SURVEY ATTITUDES OF UK
CONSTRUCTION PRODUCT MANUFACTURERS ON THE IMPACT OF THE
EUROPEAN CONSTRUCTION PRODUCTS DIRECTIVE**

Instructions

Please complete all questions by placing a tick in the relevant box, e.g.

SECTION 1 : EUROPEAN AWARENESS

1. Is your company aware of any of the:
- | | | |
|--|----------------------------|----------------------------|
| | Yes | No |
| a) European Single Market measures, e.g. changes to border controls? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| b) Breakdown of trade barriers? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
2. Is your company aware of the:
- | | | |
|--|----------------------------|----------------------------|
| a) European Construction Products Directive? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| b) UK Construction Products Regulations? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
3. When did your company first become aware of :
- a) **The Construction Products Directive**
- | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|
| Before 1992 | 1992 - 1994 | 1995 - 1997 | 1998 - 1999 |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
- b) **The Construction Products Regulations**
- | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|
| Before 1992 | 1992 - 1994 | 1995 - 1997 | 1998 - 1999 |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
4. What do you expect will be the effect of the Construction Products Directive on your product in ;
- | | | | | |
|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| | Not at all | A little | Quite a lot | A great deal |
| a) the domestic market | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| b) the EU markets | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
5. How important has the removal of other trade barriers been to your product and market share?
- | | | | | |
|---|----------------------------|----------------------------|----------------------------|----------------------------|
| | Not at all | A little | Quite a lot | A great deal |
| Harmonisation of standards and testing procedures | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| Administrative Barriers (Customs) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Frontier Delays and Costs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Differences in VAT, excise taxes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Transport Market Restrictions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Implementation of EC law | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Others | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- If others, name
-

OFFICE USE

Group Code

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

Case

<input type="text"/>	<input type="text"/>
----------------------	----------------------

SECTION 2 : MARKET ENVIRONMENT

6. Has the Directive changed your business environment? Not at all 1 A little 2 Quite a lot 3 A great deal 4

7. Has the Directive led to a change in your firms market strategy? Yes 1 No 2
 a) If yes, would your company have changed the strategy even without the introduction of the Directive? 1 2

8. Is your company involved in any of these markets?

	Before 1992	1992 - 1999
UK	<input type="checkbox"/> 1	<input type="checkbox"/> 2
EU	<input type="checkbox"/>	<input type="checkbox"/>
EFTA	<input type="checkbox"/>	<input type="checkbox"/>
Europe/Other	<input type="checkbox"/>	<input type="checkbox"/>
Others	<input type="checkbox"/>	<input type="checkbox"/>

If others, name _____

9. Is your company looking at entering new markets?

	New Home Markets	EU	EFTA	Europe	Others
Due to the Directive	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Due to Single European Market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If other reasons, name _____

10. In response to the Directive which market entry strategy does your company already use or is likely to use in the future?

PAST				FUTURE				
Not at all	A little	Quite a lot	A great deal		Not at all	A little	Quite a lot	A great deal
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Export - Direct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Export - Indirect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Export Houses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Government Buying Agencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Private Buying Agencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Agents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Distributors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Franchise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Licence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Joint Venture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Merger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Acquisition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Direct Investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Is your company likely to use any other entry strategies in the future Yes 1 No 2
 If yes, name _____

12. If your company already is involved in foreign markets or is looking to new markets, how do you rate the assistance and awareness you have gained from:

AWARENESS					ASSISTANCE			
Not at all	A little	Quite a lot	A great deal		Not at all	A little	Quite a lot	A great deal
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DTI/DOE Seminars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Trade Visits by DOE/DTI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initiatives/Info. by DOE/DTI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commercial Dep'ts of UK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Consulates and Embassies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Participation in Exhibits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sponsorships and Support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	for attending visits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Market Research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Does your company believe it should have more support from :

	Yes	No
UK Government	<input type="checkbox"/> 1	<input type="checkbox"/> 2
European Commission	<input type="checkbox"/> 1	<input type="checkbox"/> 2

14. How important is the Directive, or do you foresee it being, to your firm with regards to:

COST					IMPORTANCE			
Not at all	A little	Quite a lot	A great deal		Not at all	A little	Quite a lot	A great deal
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conforming to ENs/ETAs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Testing Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Quality Assurances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Production Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Affixing the CE Marking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Investment in Standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Committees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Investment in R&D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Re-organisation of company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Market Structure - Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Market Structure - Abroad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 3 : BACKGROUND INFORMATION

15. How many people did your company employ last year?
 1-10 1 10-20 2 20-30 3 30-50 4 50-100 5 100-500 6 >500 7

16. Is your company a subsidiary of another company? Yes 1 No 2

THANK YOU FOR YOUR TIME AND CO-OPERATION IN COMPLETING THIS QUESTIONNAIRE.

RESPONDENT DETAILS:

Name: _____

Position: _____

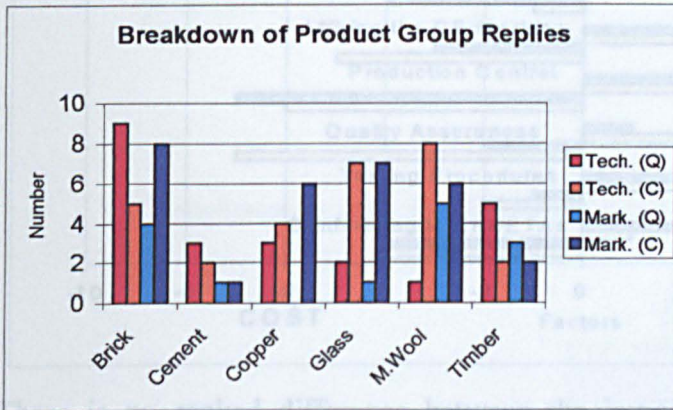
If you would like to receive a copy of the results, please tick this box:

Survey Analysis
Postal Questionnaire
December 1999/January 2000

Fiona Borthwick
School of the Built Environment
Clarence Street
Liverpool. L3 5UG

Awareness and Impact of the Construction Products Directive on UK Construction Product Manufacturers

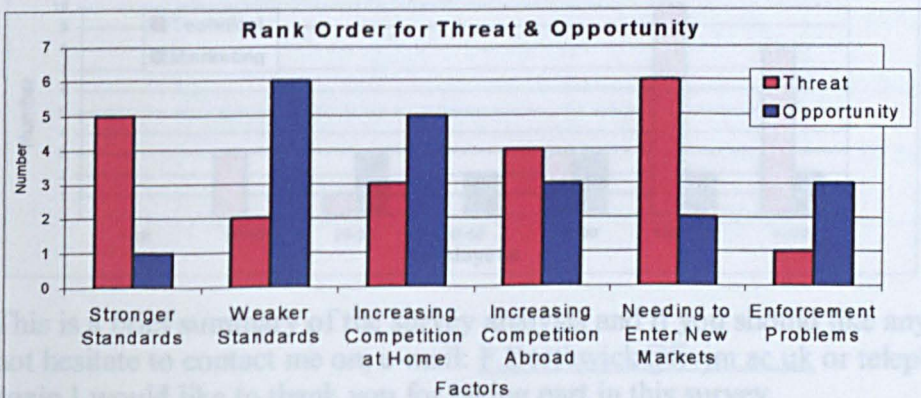
The survey was carried out on 6 product groups; clay bricks, laminated glass, cement, copper pipe and fittings, mineral wool insulation and timber joinery. The sample comprised of 214 manufacturers and each was sent a Technical and Marketing questionnaire. From the 428 surveys posted a total of 111 replies were received, however a 48% response rate from the manufacturers sampled was achieved which is a high response rate to postal questionnaires in the Construction industry. 54% of the replies were from the technical sample.



Alarmingly 40 of the 111 replies were returning the questionnaire unanswered because they believed their product was not affected by the Construction Products Directive (CPD), n=7, or that their company was not affected, n=33. All of the companies surveyed produce a product or material that is covered by the CPD and will eventually have to comply with a European Standard, even if covered by another Directive.

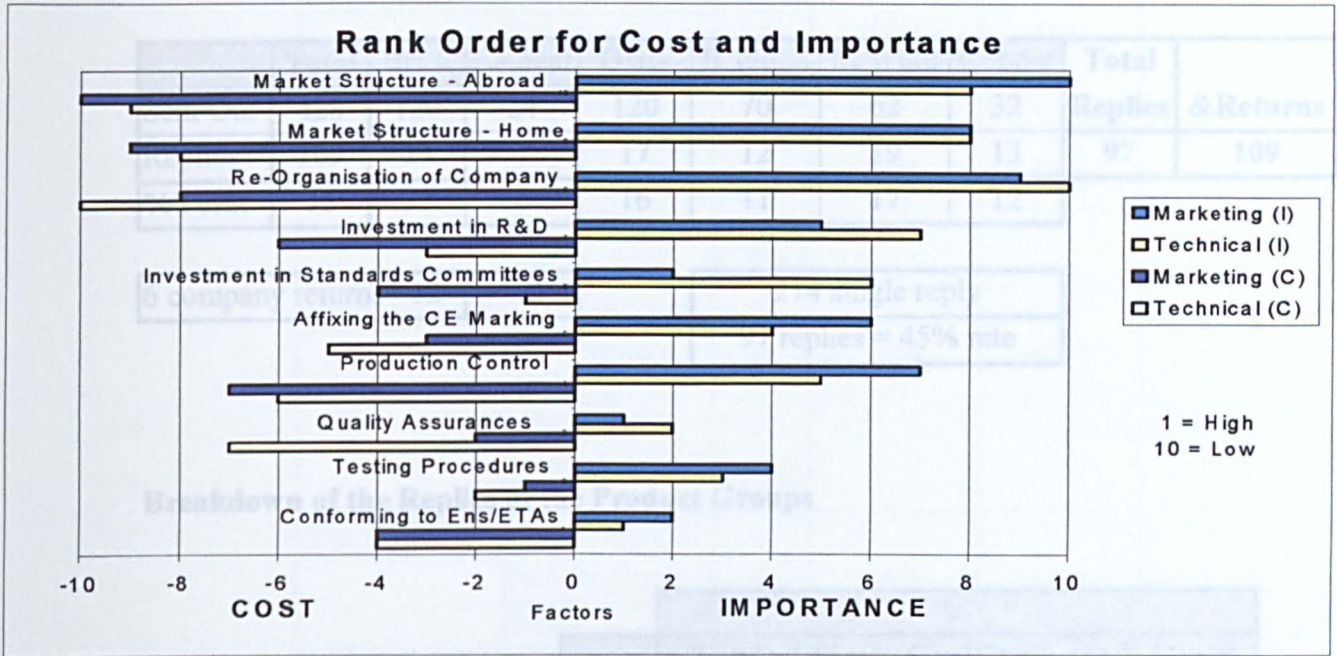
Out of the 37 questionnaires returned, 2 were not aware of the CPD and 6 of the Construction Products Regulations (CPR). The CPR is the UK legislation for implementing the CPD. The CPD was introduced into EU legislation in December 1988 and was implemented into UK legislation as the CPR in 1991. Yet only 12 companies were aware of the CPD before 1992 and only 10 of the CPR.

The Technical Managers see their being a greater effect of the CPD on their product in the EU markets than the domestic market, yet the Marketing Managers see the effect being greater on the domestic market. This maybe due to the nature of the product, or that the companies work within the UK and EU markets already. The Technical Managers, 16 of 25, do not see the Directive as having changed their business environment, however the Marketing Managers, 9 of 12, see a little or more change to their business environment. Only 3 companies have changed their market strategy due to the Directive though. This difference between Technical and Marketing Managers may be due to the Technical Managers being more aware of the slow development in European standards and believing there will be little change until the standards are in use. The Marketing Managers may attribute the changes and benefits of the Single European Market as being due in part to the Directive.



Technical Managers rank enforcement problems as the biggest threat by the Directive to their company and stronger standards as their biggest opportunity.

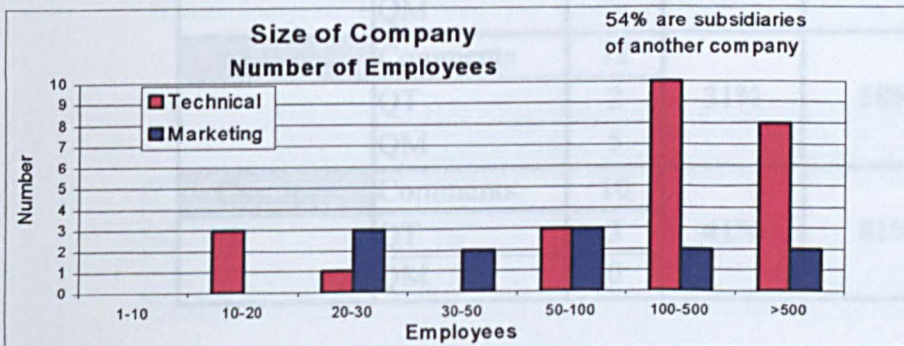
Technical Managers rank the investment in standards committees as the largest cost, yet the Marketing Managers rank testing procedures as the largest cost. This maybe due to the Technical Managers being the representative on the technical committees and see this as costly both in money and time and only rank it 6th for its importance, whereas the marketing replies rank it higher in its importance than its cost. The Technical Managers rank conforming to ENs/ETAs as the most important, yet the Marketing Managers rank the Directive being most important to QA issues.



There is no ranked difference between the importance of new European Technical Standards or European Technical Approvals and new testing or certification procedures due to the Directive, both scored 55. However, 54% of the replies believe the importance is quite a lot or more for conformity procedures compared to 41% for ENs/ETAs.

17 of the 25 technical replies were involved with the implementation of the Directive - 14 with British Standards Committees, 15 with European Standards Committee and 15 with British Trade Organisations and 9 with European Trade Organisations. This coincides with the high ranking by Technical Managers to cost investment in Standards Committees. It also shows the commitments that manufacturers have to protecting their existing working systems. Without this involvement ENs could differ significantly to British Standards costing the manufacturers to change their existing systems and even their products to meet this new EN.

20 companies believe that they should have more support from the UK government and the EU commission.



76% of the replies were from 50+ employers, this could be because smaller companies are not aware or do not fully understand the Directive.

This is a brief summary of the survey analysis and if you should like any further information please do not hesitate to contact me on, e-mail: F.Borthwick@livjm.ac.uk or telephone 0151 231 3625. Once again I would like to thank you for taking part in this survey.

TOTAL REPLIES

The total survey sample and responses from each product group:

	Total	Brick	Cement	Glass	B.Wood	M.Wool	Copper	Total	
Sent Out	428	120	24	120	70	62	32	Replies	&Returns
Replies	109	29	7	17	12	19	13		
%Total	25	27	6	16	11	17	12		

6 company returns =12	11%
-----------------------	-----

214 single reply
97 replies = 45% rate

Breakdown of the Replies of the Product Groups

		%				
		No.	Total Replies	Single Co. Reply (Tot)	Comments Reply	Quest Reply
Brick	Comments	16				
	QT	10	24%	48%	13%	11%
	QM	3				
Cement	Comments	3				
	QT	3	29%	58%	13%	17%
	QM	1				
Glass	Comments	14				
	QT	3	14%	27%	12%	3%
	QM	0				
B.Wood	Comments	4				
	QT	5	17%	34%	6%	11%
	QM	3				
M.Wool	Comments	12				
	QT	2	31%	58%	19%	11%
	QM	5				
Copper	Comments	10				
	QT	3	41%	81%	31%	9%
	QM	0				

Breakdown of Total Comments

			Technical	Marketing
Cement	N/A Product	2	50%	50%
	Other	1		
	Total	3		
Copper	N/A Company	7	38%	63%
	N/A Product	1		
	No Time	2		
	Total	10		
M.Wool	N/A Company	6	33%	67%
	N/A Product	0		
	No Time	1		
	Other	5		
	Total	12		
Glass	N/A Company	12	36%	64%
	N/A Product	2		
	Total	14		
Timber	N/A Company	1	50%	50%
	N/A Product	1		
	No Time	1		
	Other	1		
	Total	4		
Brick	N/A Company	7	33%	67%
	N/A Product	2		
	No Time	2		
	Other	5		
	Total	16		

Breakdown of Total Replies: Comments, Returns and Questionnaires

	Total	N/A Company	N/A Product	No Time	Other	Returns	Quest.
Sent Out	428						
Replies	109	33	8	6	12	12	38
% Total	25%	30%	7%	6%	11%	11%	35%

9% of total sample
18% of single quest

TOTAL QUESTIONNAIRE REPLIES

The results are shown in table format with the marketing results in italics and the combined results of the technical and marketing replies in bold.

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

a) European Single Market measures, e.g. changes to border controls?

b) Breakdown of barriers to trade?

			%		
QU.1	1	2	1	2	Total
<i>A</i>	<i>22</i>	<i>4</i>	89%	11%	38
<i>B</i>	<i>21</i>	<i>5</i>	84%	16%	38

2. Is your company aware of the: (Yes No)

a) European Construction Products Directive?

b) UK Construction Products Regulations?

			%		
QU.2	1	2	1	2	Total
<i>A</i>	<i>24</i>	<i>2</i>	95%	5%	38
<i>B</i>	<i>21</i>	<i>5</i>	84%	16%	38

3. When did your company first become aware of:

1=Before 1992

2=1992 - 1994

3=1995 - 1997

4=1998 - 1999

a) The Construction Products Directive

b) The Construction Products Regulations

QU.3	1	2	3	4		QU.3	1	2	3	4
<i>A</i>	<i>11</i>	<i>2</i>	<i>8</i>	<i>3</i>	No 2	<i>A</i>	<i>2</i>	<i>5</i>	<i>4</i>	<i>1</i>
<i>B</i>	<i>7</i>	<i>2</i>	<i>6</i>	<i>6</i>	No 5	<i>B</i>	<i>3</i>	<i>4</i>	<i>3</i>	<i>1</i>

QU.3	1	2	3	4	Total		QU.3	1	2	3	4	Not at all
<i>A</i>	<i>13</i>	<i>7</i>	<i>12</i>	<i>4</i>	36	No 2	<i>A</i>	36%	19%	33%	11%	36%
<i>B</i>	<i>10</i>	<i>6</i>	<i>10</i>	<i>7</i>	33	No 5	<i>B</i>	30%	18%	30%	21%	30%

4. What do you expect will be the effect of the Construction Products Directive on your product in:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

a) the domestic market b) the EU markets

QU.4	1	2	3	4	No 1	QU.4	1	2	3	4	No 1
A	4	16	4	1		A	3	5	2	1	No 1
B	6	9	7	3		B	4	1	3	1	No 3

QU.4	1	2	3	4	Total	No 2	QU.4	1	2	3	4	Not at all
A	7	21	6	2	36	No 2	A	19%	58%	17%	6%	19%
B	10	10	10	4	34	No 4	B	29%	29%	29%	12%	29%

QU. 4	<'92	92-'94	95-'97	97-'99	Total
CPD Technical	4	16	4	1	25
CPD Marketing	3	5	2	1	11
CPR Technical	6	9	7	3	25
CPR Marketing	4	1	3	1	9
sum	17	31	16	6	

5. How important has the removal of other trade barriers been to your product and market share?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.5	1	2	3	4	Sum	1 %	2 %	3 %	4 %	Little/Deal	Quite/Deal	Mean	R
Harmonisation of standards and testing procedures	6	3	1	2	12	50	25	8	17	50%	25%	1.92	1
Administrative Barriers (Customs)	6	3	2	0	11	55	27	18	0	45%	18%	1.27	7
Frontier Delays and Costs	6	3	2	0	11	55	27	18	0	45%	18%	1.45	3
Differences in VAT, excise taxes	6	3	2	0	11	55	27	18	0	45%	18%	1.45	3
Transport Market Restrictions	7	3	1	0	11	64	27	9	0	36%	9%	1.36	6
Implementation of EC law	5	2	3	1	11	45	18	27	9	55%	36%	1.45	2
Others	4	0	1	0	5	80	0	20	0	20%	20%	1.40	5

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1=Not at all

2= 1= AWARE

3= 2= COMPLY

4=A great deal

QU.5	1	2	Sum	Rank	Aware	Comply	Sum
Pressure Equipment Directive	6	4	14	5	16%	11%	26%
Electromagnetic Compatibility Directive	2	0	2	8	5%	0%	5%
Hot Water Boilers Directive	1	1	3	7	3%	3%	5%
Machinery Directive	9	5	19	4	24%	13%	37%
General Product Safety Directive	8	7	22	3	21%	18%	39%
Packaging and Packaging Waste Directive	13	8	29	1	34%	21%	55%
CE Marking Directive	16	4	24	2	42%	11%	53%
Others	2	1	4	6	5%	3%	8%
Total	57	30					

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2	Total	Yes	No
	18	8	26	69%	31%

7. If yes, are you involved in: (Yes No)

QU.7	1	2	%
British Technical Standards Committees	14	0	54%
European Technical Standards Committees	16	0	62%
British Trade Organisations	16	0	62%
European Trade Organisations	9	0	35%

8. Does your company see the Directive as causing a THREAT by:

9. Does your company see the Directive an OPPORTUNITY due to:

1=Not at all

2=A little

3=Quite a lot

4=A great deal

QU.8 THREAT	1	2	3	4	Sum	1	2	3	4	Quite/ Deal	Little /Deal	R
Stronger standards	18	5	1	0	24	75%	21%	4%	0%	4%	25%	5
Weaker standards	13	5	4	1	23	57%	22%	17%	4%	22%	43%	2
Increasing competition at home	13	10	0	0	23	57%	43%	0%	0%	0%	43%	3
Increasing competition abroad	16	6	1	0	23	70%	26%	4%	0%	4%	30%	4
Needing to entering new markets	17	4	1	0	22	77%	18%	5%	0%	5%	23%	6
Enforcement problems	6	5	10	2	23	26%	22%	43%	9%	52%	74%	1
QU.9 OPPORTUNITY	1	2	3	4	Sum	1	2	3	4	Quite/ Deal	Little /Deal	R
Stronger standards	12	4	7	1	24	50%	17%	29%	4%	33%	50%	1
Weaker standards	21	2	1	0	24	88%	8%	4%	0%	4%	13%	6
Increasing competition at home	19	5	0	0	24	79%	21%	0%	0%	0%	21%	5
Increasing competition abroad	17	6	1	0	24	71%	25%	4%	0%	4%	29%	4
Needing to entering new markets	14	8	1	0	23	61%	35%	4%	0%	4%	39%	2
Enforcement problems	17	4	1	1	23	74%	17%	4%	4%	9%	26%	3

Rank by mean

QU.8 THREAT	1	2	3	4	Sum	1	2	3	4	sum	mean	R
Stronger standards	18	5	1	0	24	18	10	3	0	31	1.29	5
Weaker standards	13	5	4	1	23	13	10	12	4	39	1.70	2
Increasing competition at home	13	10	0	0	23	13	20	0	0	33	1.43	3
Increasing competition abroad	16	6	1	0	23	16	12	3	0	31	1.35	4
Needing to entering new markets	17	4	1	0	22	17	8	3	0	28	1.27	6
Enforcement problems	6	5	10	2	23	6	10	30	8	54	2.35	1
QU.9 OPPORTUNITY	1	2	3	4	Sum	1	2	3	4	sum	mean	R
Stronger standards	12	4	7	1	24	12	8	21	4	45	1.88	1
Weaker standards	21	2	1	0	24	21	4	3	0	28	1.17	6
Increasing competition at home	19	5	0	0	24	19	10	0	0	29	1.21	5
Increasing competition abroad	17	6	1	0	24	17	12	3	0	32	1.33	4
Needing to entering new markets	14	8	1	0	23	14	16	3	0	33	1.43	2
Enforcement problems	17	4	1	1	23	17	8	3	4	32	1.39	3

10. How important to your product do you foresee the measures of the Directive being?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	Sum	1	2	3	4	sum	mean	Rank
New ENs/ETAs	5	10	8	2	25	5	20	24	8	57	2.28	2
New Conformity Procedures	3	7	11	2	23	3	14	33	8	58	2.52	1

QU.10	1	2	3	4	Little/Quite	Quite/Deal
New ENs/ETAs	20%	40%	32%	8%	72%	41%
New Conformity Procedures	13%	30%	48%	9%	78%	54%

Section 3: Market Environment

11. Has the Directive changed your business environment?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.11	1	2	3	4	Total	QU.6	1	2	3	4	Total
	17	8	0	1	26		3	5	4	0	12
%	65%	31%	0%	4%	35%	%	25%	42%	33%	0%	75%

Both	1	2	3	4
Total	20	13	4	1
%	53%	34%	11%	3%
		47% Little/Deal		

12. Has the Directive led to a change in your firms market strategy? (Yes No)

a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2			QU.7	1	2		
	3	23	88%	No Change		4	8	67%	No Change
A	1	2	67%	Due to CPD	A	2	2	50%	Due to CPD

Both	1	2
Total	7	31
%	18%	82%
Of Total Replies		

13. Is your company involved in any of these markets?

1=Before 1992 2=1992 – 1999

QU.13	1	2
UK	24	26
EU	18	11
EFTA	6	5
Rest of Europe	9	7
Others	9	6

QU.8	1	2
	12	12
	6	5
	2	2
	3	1
	2	3

Both	1	2	Diff.	% Diff	Total	%	% Post'92
A	36	38	2	5%	36	97%	100%
B	24	16	4	25%	24	65%	42%
C	8	7	4	57%	8	22%	18%
D	12	8	5	63%	12	32%	21%
E	11	9	5	56%	11	30%	24%

14. Is your company looking at entering new markets?

1=New Home Markets 2=EU 3=EFTA 4=Rest of Europe 5=Others

12 Technical replies and 8 Marketing replies are not looking to enter any new markets.

QU.14	1	2	3	4	5	No 12	QU.9	1	2	3	4	5	
Due to the Directive	1	0	1	1	0			1	No 8				
Due to the SEM	0	1	1	1	1		0						
Other reasons	7	2	1	3	3		2						

Both	1	2	3	4	5	Total	% Replies
Due to the Directive	2	0	1	1	0	4	11%
Due to the SEM	0	1	1	1	1	4	11%
Other reasons	9	2	1	3	3	18	47%
Total	11	3	3	5	4		
%	29%	8%	8%	13%	11%	20	No Replies 53%

10. In response to the Directive which market entry strategy does your company already use or is likely to use in the future?

1=Not at all

2=A little

3=Quite a lot

4=A great deal

Rank by percentage

PAST												
QU.10	1	2	3	4	Total	1	2	3	4	Little /Deal	Quite/ Deal	R
<i>Export - Direct</i>	7	4	1	0	12	58%	33%	8%	0%	42%	8%	4
<i>Export - Indirect</i>	11	1	0	0	12	92%	8%	0%	0%	8%	0%	8
<i>Government Buying Agencies</i>	9	2	0	1	12	75%	17%	0%	8%	25%	8%	5
<i>Private Buying Agencies</i>	9	1	1	1	12	75%	8%	8%	8%	25%	17%	3
<i>Agents</i>	7	2	1	2	12	58%	17%	8%	17%	42%	25%	2
<i>Distributors</i>	5	3	2	2	12	42%	25%	17%	17%	58%	33%	1
<i>Franchise</i>	11	1	0	0	12	92%	8%	0%	0%	8%	0%	8
<i>Licence</i>	11	1	0	0	12	92%	8%	0%	0%	8%	0%	8
<i>Joint Venture</i>	10	1	1	0	12	83%	8%	8%	0%	17%	8%	7
<i>Merger</i>	12	0	0	0	12	100%	0%	0%	0%	0%	0%	12
<i>Acquisition</i>	9	2	1	0	12	75%	17%	8%	0%	25%	8%	6
<i>Direct Investment</i>	10	1	0	0	11	91%	9%	0%	0%	9%	0%	8

FUTURE												
QU.10	1	2	3	4	Total	1	2	3	4	Little /Deal	Quite/ Deal	R
<i>Export - Direct</i>	6	5	1	0	12	50%	42%	8%	0%	50%	8%	5
<i>Export - Indirect</i>	9	3	0	0	12	75%	25%	0%	0%	25%	0%	9
<i>Government Buying Agencies</i>	9	2	0	1	12	75%	17%	0%	8%	25%	8%	6
<i>Private Buying Agencies</i>	7	3	1	1	12	58%	25%	8%	8%	42%	17%	3
<i>Agents</i>	7	1	2	2	12	58%	8%	17%	17%	42%	33%	2
<i>Distributors</i>	6	1	3	2	12	50%	8%	25%	17%	50%	42%	1
<i>Franchise</i>	9	3	0	0	12	75%	25%	0%	0%	25%	0%	9
<i>Licence</i>	9	3	0	0	12	75%	25%	0%	0%	25%	0%	9
<i>Joint Venture</i>	9	1	2	0	12	75%	8%	17%	0%	25%	17%	7
<i>Merger</i>	11	1	0	0	12	92%	8%	0%	0%	8%	0%	12
<i>Acquisition</i>	6	4	2	0	12	50%	33%	17%	0%	50%	17%	4
<i>Direct Investment</i>	8	3	0	0	11	73%	27%	0%	0%	27%	0%	8

Rank by mean

PAST												
QU.10	1	2	3	4	Total	1	2	3	4	Sum	Mean	R
<i>Export - Direct</i>	7	4	1	0	12	7	8	3	0	18	1.50	4
<i>Export - Indirect</i>	11	1	0	0	12	11	2	0	0	13	1.08	8
<i>Government Buying Agencies</i>	9	2	0	1	12	9	4	0	4	17	1.42	5
<i>Private Buying Agencies</i>	9	1	1	1	12	9	2	3	4	18	1.50	3
<i>Agents</i>	7	2	1	2	12	7	4	3	8	22	1.83	2
<i>Distributors</i>	5	3	2	2	12	5	6	6	8	25	2.08	1
<i>Franchise</i>	11	1	0	0	12	11	2	0	0	13	1.08	8
<i>Licence</i>	11	1	0	0	12	11	2	0	0	13	1.08	8
<i>Joint Venture</i>	10	1	1	0	12	10	2	3	0	15	1.25	7
<i>Merger</i>	12	0	0	0	12	12	0	0	0	12	1.00	12
<i>Acquisition</i>	9	2	1	0	12	9	4	3	0	16	1.33	6
<i>Direct Investment</i>	10	1	0	0	11	10	2	0	0	12	1.09	8
FUTURE												
QU.10	1	2	3	4	Total	1	2	3	4	Sum	Mean	R
<i>Export - Direct</i>	6	5	1	0	12	6	10	3	0	19	1.58	5
<i>Export - Indirect</i>	9	3	0	0	12	9	6	0	0	15	1.25	9
<i>Government Buying Agencies</i>	9	2	0	1	12	9	4	0	4	17	1.42	6
<i>Private Buying Agencies</i>	7	3	1	1	12	7	6	3	4	20	1.67	3
<i>Agents</i>	7	1	2	2	12	7	2	6	8	23	1.92	2
<i>Distributors</i>	6	1	3	2	12	6	2	9	8	25	2.08	1
<i>Franchise</i>	9	3	0	0	12	9	6	0	0	15	1.25	9
<i>Licence</i>	9	3	0	0	12	9	6	0	0	15	1.25	9
<i>Joint Venture</i>	9	1	2	0	12	9	2	6	0	17	1.42	7
<i>Merger</i>	11	1	0	0	12	11	2	0	0	13	1.08	12
<i>Acquisition</i>	6	4	2	0	12	6	8	6	0	20	1.67	4
<i>Direct Investment</i>	8	3	0	0	11	8	6	0	0	14	1.27	8

11. Is your company likely to use any other entry strategies in the future? (Yes No)

QU.11	1	2	
	0	12	100%

12. If your company already is involved in foreign markets or is looking to new markets, how do you rate the assistance and awareness you have gained from:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

Rank by mean

AWARENESS												
QU.12	1	2	3	4	Total	1	2	3	4	sum	mean	R
<i>DTI/DOE Seminars</i>	1	1	2	0	4	1	2	6	0	9	2.25	2
<i>Trade Visits by DOE/DTI</i>	1	2	1	0	4	1	4	3	0	8	2.00	3=
<i>Initiatives/Info. by DOE/DTI</i>	1	1	1	0	3	1	2	3	0	6	2.00	3=
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	0	3	0	0	3	0	6	0	0	6	2.00	3=
<i>Participation in Exhibits</i>	0	3	0	0	3	0	6	0	0	6	2.00	3=
<i>Sponsorships and Support for attending visits</i>	1	2	0	0	3	1	4	0	0	5	1.67	7
<i>Market Research</i>	0	2	2	0	4	0	4	6	0	10	2.50	1
ASSISTANCE												
QU.12	1	2	3	4	Total	1	2	3	4	sum	mean	R
<i>DTI/DOE Seminars</i>	2	1	1	0	4	2	2	3	0	7	1.75	2=
<i>Trade Visits by DOE/DTI</i>	2	1	1	0	4	2	2	3	0	7	1.75	2=
<i>Initiatives/Info. by DOE/DTI</i>	2	0	1	0	3	2	0	3	0	5	1.67	4=
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	1	2	0	0	3	1	4	0	0	5	1.67	4=
<i>Participation in Exhibits</i>	1	2	0	0	3	1	4	0	0	5	1.67	4=
<i>Sponsorships and Support for attending visits</i>	2	1	0	0	3	2	2	0	0	4	1.33	7
<i>Market Research</i>	1	1	2	0	4	1	2	6	0	9	2.25	1

Rank by percentage

AWARENESS												
QU.12	1	2	3	4	Total	1	2	3	4	Little/Deal	Quite/Deal.	R
<i>DTI/DOE Seminars</i>	1	1	2	0	4	25%	25%	50%	0%	75%	50%	2
<i>Trade Visits by DOE/DTI</i>	1	2	1	0	4	25%	50%	25%	0%	75%	25%	4
<i>Initiatives/Info. by DOE/DTI</i>	1	1	1	0	3	33%	33%	33%	0%	67%	33%	3
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	0	3	0	0	3	0%	100%	0%	0%	100%	0%	5
<i>Participation in Exhibits</i>	0	3	0	0	3	0%	100%	0%	0%	100%	0%	5
<i>Sponsorships and Support for attending visits</i>	1	2	0	0	3	33%	67%	0%	0%	67%	0%	7
<i>Market Research</i>	0	2	2	0	4	0%	50%	50%	0%	100%	50%	1

ASSISTANCE												
QU.12	1	2	3	4	Total	1	2	3	4	Little/Deal	Quite/Deal	R
<i>DTI/DOE Seminars</i>	2	1	1	0	4	50%	25%	25%	0%	50%	25%	2
<i>Trade Visits by DOE/DTI</i>	2	1	1	0	4	50%	25%	25%	0%	50%	25%	2
<i>Initiatives/Info. by DOE/DTI</i>	2	0	1	0	3	67%	0%	33%	0%	33%	33%	4
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	1	2	0	0	3	33%	67%	0%	0%	67%	0%	5
<i>Participation in Exhibits</i>	1	2	0	0	3	33%	67%	0%	0%	67%	0%	5
<i>Sponsorships and Support for attending visits</i>	2	1	0	0	3	67%	33%	0%	0%	33%	0%	7
<i>Market Research</i>	1	1	2	0	4	25%	25%	50%	0%	75%	50%	1

15. Does your company believe it should have more support from: (Yes No)

QU.15	1	2	Total	%Yes	QU.13	1	2	Total	%Yes
UK Government	14	8	22	64%		5	3	8	63%
European Commission	13	8	21	62%		6	2	8	75%

Both	1	2	Total	%Yes
UK Government	19	11	30	63%
European Commission	19	10	29	66%

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.16						QU.14				
COST	1	2	3	4	Total	1	2	3	4	Total
Conforming to ENs/ETAs	5	13	5	1	24	1	5	3	1	10
Testing Procedures	5	12	6	1	24	0	5	3	2	10
Quality Assurances	8	12	3	1	24	1	4	4	1	10
Production Control	9	10	4	1	24	2	6	2	0	10
Affixing the CE Marking	6	13	4	1	24	0	6	3	1	10
Investment in Standards Committees	5	9	9	1	24	1	5	3	1	10
Investment in R&D	12	5	7	0	24	2	5	3	0	10
Re-organisation of company	15	9	0	0	24	5	3	2	0	10
Market Structure - Home	15	8	1	0	24	4	4	1	1	10
Market Structure - Abroad	16	7	1	0	24	6	3	0	1	10

IMPORTANCE	1	2	3	4		1	2	3	4	
Conforming to ENs/ETAs	4	4	8	8	24	2	3	4	1	10
Testing Procedures	4	6	9	5	24	3	2	4	1	10
Quality Assurances	4	4	12	4	24	1	2	6	1	10
Production Control	7	6	8	3	24	2	5	3	0	10
Affixing the CE Marking	6	7	6	5	24	2	5	2	1	10
Investment in Standards Committees	4	11	3	6	24	2	3	4	1	10
Investment in R&D	9	7	5	3	24	3	2	5	0	10
Re-organisation of company	14	10	0	0	24	6	2	2	0	10
Market Structure - Home	12	9	3	0	24	4	4	1	1	10
Market Structure - Abroad	12	9	3	0	24	8	2	0	0	10

Rank by mean

Both

COST	1	2	3	4	Total	1	2	3	4	sum	mean	R
Conforming to ENs/ETAs	6	18	8	2	34	6	36	24	8	74	2.18	3
Testing Procedures	5	17	9	3	34	5	34	27	12	78	2.29	1
Quality Assurances	9	16	7	2	34	9	32	21	8	70	2.06	5
Production Control	11	16	6	1	34	11	32	18	4	65	1.91	6
Affixing the CE Marking	6	19	7	2	34	6	38	21	8	73	2.15	4
Investment in Standards Committees	6	14	12	2	34	6	28	36	8	78	2.29	2
Investment in R&D	14	10	10	0	34	14	20	30	0	64	1.88	7
Re-organisation of company	20	12	2	0	34	20	24	6	0	50	1.47	9
Market Structure - Home	19	12	2	1	34	19	24	6	4	53	1.56	8
Market Structure - Abroad	22	10	1	1	34	22	20	3	4	49	1.44	10
IMPORTANCE	1	2	3	4	Total	1	2	3	4	sum	mean	R
Conforming to ENs/ETAs	6	7	12	9	34	6	14	36	36	92	2.71	1
Testing Procedures	7	8	13	6	34	7	16	39	24	86	2.53	3
Quality Assurances	5	6	18	5	34	5	12	54	20	91	2.68	2
Production Control	9	11	11	3	34	9	22	33	12	76	2.24	6
Affixing the CE Marking	8	12	8	6	34	8	24	24	24	80	2.35	5
Investment in Standards Committees	6	14	7	7	34	6	28	21	28	83	2.44	4
Investment in R&D	12	9	10	3	34	12	18	30	12	72	2.12	7
Re-organisation of company	20	12	2	0	34	20	24	6	0	50	1.47	10
Market Structure - Home	16	13	4	1	34	16	26	12	4	58	1.71	8
Market Structure - Abroad	20	11	3	0	34	20	22	9	0	51	1.50	9

Rank by percentage

Both

COST	1	2	3	4	Sum	1	2	3	4	Little/ Deal	Quite/ Deal	R
Conforming to ENs/ETAs	6	18	8	2	34	18%	53%	24%	6%	82%	29%	3
Testing Procedures	5	17	9	3	34	15%	50%	26%	9%	85%	35%	1
Quality Assurances	9	16	7	2	34	26%	47%	21%	6%	74%	26%	5
Production Control	11	16	6	1	34	32%	47%	18%	3%	68%	21%	6
Affixing the CE Marking	6	19	7	2	34	18%	56%	21%	6%	82%	26%	4
Investment in Standards Committees	6	14	12	2	34	18%	41%	35%	6%	82%	41%	2
Investment in R&D	14	10	10	0	34	41%	29%	29%	0%	59%	29%	7
Re-organisation of company	20	12	2	0	34	59%	35%	6%	0%	41%	6%	9
Market Structure - Home	19	12	2	1	34	56%	35%	6%	3%	44%	9%	8
Market Structure - Abroad	22	10	1	1	34	65%	29%	3%	3%	35%	6%	10
IMPORTANCE	1	2	3	4	Sum	1	2	3	4	Little/ Deal	Quite/ Deal	R
Conforming to ENs/ETAs	6	7	12	9	34	18%	21%	35%	26%	82%	62%	1
Testing Procedures	7	8	13	6	34	21%	24%	38%	18%	79%	56%	3
Quality Assurances	5	6	18	5	34	15%	18%	53%	15%	85%	68%	2
Production Control	9	11	11	3	34	26%	32%	32%	9%	74%	41%	6
Affixing the CE Marking	8	12	8	6	34	24%	35%	24%	18%	76%	41%	5
Investment in Standards Committees	6	14	7	7	34	18%	41%	21%	21%	82%	41%	4
Investment in R&D	12	9	10	3	34	35%	26%	29%	9%	65%	38%	7
Re-organisation of company	20	12	2	0	34	59%	35%	6%	0%	41%	6%	10
Market Structure - Home	16	13	4	1	34	47%	38%	12%	3%	53%	15%	8
Market Structure - Abroad	20	11	3	0	34	59%	32%	9%	0%	41%	9%	9

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10 2=10-20 3=20-30 4=30-50 5=50-100 6=100-500 7=>500

QU.17	1	2	3	4	5	6	7	Total
T	0	3	2	0	4	10	7	26
M	0	0	3	2	3	2	2	12
Total	0	3	5	2	7	12	9	38
%	0%	8%	13%	5%	18%	32%	24%	

QU.17	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
Total	0	3	5	2	7	12	9	55%

Replies over 50 employees		% of Total Replies
Technical	21	55%
Marketing	7	18%
Total	28	76%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	1	2	QU.18	1	2
	14	12		7	5

QU.18	1	2	Yes	No
Total	21	17	55%	45%

Subsidiary Between Groups						
	Yes		No		Total	
Light	9	47%	10	47%	19	100%
Heavy	12	67%	6	33%	18	100%

SPEARMANS RANK CORRELATION COEFFECIENT & THE T-TEST RESULTS

The following formulae were applied to certain questions and the results are shown:

Spearman's Rank Correlation Coefficient

$$\text{Rho} = 1 - \frac{6(\sum d^2)}{n(n^2-1)}$$

$$n(n^2-1)$$

where, d = the difference in rankings

n = number of factors

T-Test

$$T = \frac{\gamma \sqrt{(n-2)}}{\sqrt{(1-\gamma^2)}}$$

$$\sqrt{(1-\gamma^2)}$$

where, $\gamma = \text{rho}$

n = number of factors

Qu. 5: Ranked Importance of Removal of Certain Trade Barriers

	Rank Quest	Rank EU Rep.	d	d ²
Harmonisation of standards and testing procedures	1	1	0	0
Administrative Barriers (Customs)	6	3	3	9
Frontier Delays and Costs	3.5	4	0.5	0.25
Differences in VAT, excise taxes	3.5	6	2.5	6.25
Transport Market Restrictions	5	5	0	0
Implementation of EC law	2	2	0	0
				Σd²=15.5

Rho = 0.443

Rho(part) = 0.582

T-Test (part) = 2.264

Qu. 8 & 9: Rank Opportunity and Threats

Factors	Rank Opp.	Rank Threat	d	d ²
Stronger standards	1	5	4	19
Weaker standards	6	2	4	16
Increasing competition at home	5	3	2	4
Increasing competition abroad	4	4	0	0
Needing to entering new markets	2	6	4	16
Enforcement problems	3	1	2	4
				Σd²=56

Rho = 0.6

Qu. 10 Marketing: Rank for Past and Future Market Entry Strategies

	PAST				FUTURE				
	Rank Light	Rank Heavy	d	d ²	Rank Light	Rank Heavy	d	d ²	
Export - Direct	4	4.5	0.5	0.25	6	6	0	0	
Export - Indirect	8.5	7.5	1	1	7.5	7.5	0	0	
Government Buying Agencies	6	2.5	3.5	12.25	11.5	2.5	9	81	
Private Buying Agencies	5	2.5	2.5	6.25	4.5	2.5	2	4	
Agents	2	1	1	1	2	1	1	1	
Distributors	1	4.5	3.5	12.25	1	4	3	9	
Franchise	8.5	7.5	1	1	7.5	7.5	0	0	
Licence	8.5	7.5	1	1	7.5	7.5	0	0	
Joint Venture	3	11.5	8.5	72.25	3	11.5	8.5	72.25	
Merger	8.5	11.5	3	9	11.5	11.5	0	0	
Acquisition	6	4.5	1.5	2.25	4.5	5	0.5	0.25	
Direct Investment	8.5	7.5	1	1	7.5	7.5	0	0	
				Σd²=119.5					Σd²=167.5

Rho(past) = 0.582

T-Test (past) = 2.264

Rho(future) = 0.414

T-Test(future) = 1.440

Qu. 12 Marketing: Rank Awareness and Assistance

	Rank		d	d ²
	Aware	Assist		
DTI/DOE Seminars	2.5	2.5	0	0
Trade Visits by DOE/DTI	4	2.5	1.5	2.25
Initiatives/Info. by DOE/DTI	5.5	4.5	1	1
Commercial Dep'ts of UK Consulates and Embassies	5.5	4.5	1	1
Participation in Exhibits	2.5	4.5	2	4
Sponsorships and Support for attending visits	7	7	0	0
Market Research	1	1	0	0
				$\Sigma d^2=8.25$

Rho = 0.853

T-Test = 3.650

Qu. 16: Rank Cost and Importance

	COST				IMPORTANCE				
	Rank Light	Rank Heavy	d	d ²	Rank Light	Rank Heavy	d	d ²	
Conforming to ENs/ETAs	1	4.5	3.5	12.25	1	3	2	4	
Testing Procedures	2.5	2.5	0	0	5	2	3	9	
Quality Assurances	4	4.5	0.5	0.25	2	1	1	1	
Production Control	7.5	6.5	1	1	6.5	6.5	0	0	
Affixing the CE Marking	5.5	2.5	3	9	6.5	5	1.5	2.25	
Investment in Standards Committees	2.5	1	1.5	2.25	3	4	1	1	
Investment in R&D	5.5	6.5	1	1	4	6.5	2.5	6.25	
Re-organisation of company	7.5	6.5	1	1	8.5	8.5	0	0	
Market Structure - Home	7.5	6.5	1	1	8.5	8.5	0	0	
Market Structure - Abroad	7.5	6.5	1	1	10	8.5	1.5	2.25	
				$\Sigma d^2=28.75$					$\Sigma d^2=25.75$

Rho(cost) = 0.826

T-Test(cost) = 4.141

Rho(importance) = 0.844

T-Test(importance) = 4.450

Brick Analysis

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

- a) European Single Market measures, e.g. changes to border controls?
- b) Breakdown of barriers to trade?

QU.1	1	2
A	9	1
B	9	1

QU.1	1	2
A	3	0
B	3	0

2. Is your company aware of the: (Yes No)

- a) European Construction Products Directive?
- b) UK Construction Products Regulations?

QU.2	1	2
A	10	0
B	9	1

QU.2	1	2
A	3	0
B	3	0

3. When did your company first become aware of:

1=Before 1992 2=1992 - 1994 3=1995 - 1997 4=1998 - 1999

- a) The Construction Products Directive
- b) The Construction Products Regulations

QU.3	1	2	3	4		Before 1992
A	5	1	2	1	No 1	56%
B	5	0	2	1	No 2	56%
QU.3	1	2	3	4		
A	0	2	1	0		0%
B	1	1	1	0		33%

4. What do you expect will be the effect of the Construction Products Directive on your product in: a) the domestic market b) the EU markets

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.4	1	2	3	4
A	1	7	2	0
B	3	3	3	1
QU.4	1	2	3	4
A	2	1	0	0
B	1	0	1	0

	1	2	3	4	Sum	Mean	Rank
	1	14	6	0	21	2.1	2
	3	6	9	4	22	2.2	1
	2	2	0	0	4	1.33	2
No 1	1	0	3	0	4	2	1

5. How important has the removal of other trade barriers been to your product and market share?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.5	1	2	3	4	1	2	3	4	Sum	Mean	R
<i>Harmonisation of standards and testing procedures</i>	1	1	0	0	1	2	0	0	3	1.5	2=
<i>Administrative Barriers (Customs)</i>	1	1	0	0	1	2	0	0	3	1.5	2=
<i>Frontier Delays and Costs</i>	1	1	0	0	1	2	0	0	3	1.5	2=
<i>Differences in VAT, excise taxes</i>	1	1	0	0	1	2	0	0	3	1.5	2=
<i>Transport Market Restrictions</i>	2	0	0	0	2	0	0	0	2	1.0	6
<i>Implementation of EC law</i>	1	0	0	1	1	0	0	4	5	2.5	1
<i>Others</i>	0	0	0	0	0	0	0	0	0		

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1= AWARE 2= COMPLY

QU.5	1	2	No 1	Aware	Comply
Pressure Equipment Directive	3	2		30%	20%
Electromagnetic Compatibility Directive	0	0		0	0
Hot Water Boilers Directive	0	0		0	0
Machinery Directive	5	3		50%	30%
General Product Safety Directive	2	3		20%	30%
Packaging and Packaging Waste Directive	7	5		70%	50%
CE Marking Directive	8	3		80%	30%
Others	1	1		10%	10%

Others: Public Procurement Directive

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2
	7	3

7. If yes, are you involved in: (Yes No)

QU.7	1	2	No 3
British Technical Standards Committees	6	0	
European Technical Standards Committees	6	0	
British Trade Organisations	7	0	
European Trade Organisations	5	0	

8. Does your company see the Directive as causing a THREAT by:

9. Does your company see the Directive an OPPORTUNITY due to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.8 THREAT	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Stronger standards	6	3	0	0		6	6	0	0	12	1.33	4
Weaker standards	4	1	4	0		4	2	12	0	18	2.00	2
Increasing competition at home	5	4	0	0		5	8	0	0	13	1.44	3
Increasing competition abroad	6	3	0	0		6	6	0	0	12	1.33	5
Needing to entering new markets	7	2	0	0		7	4	0	0	11	1.22	6
Enforcement problems	3	2	4	0		3	4	12	0	19	2.11	1
QU.9 OPPORTUNITY	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Stronger standards	6	0	3	0		6	0	9	0	15	1.67	1
Weaker standards	8	1	0	0		8	2	0	0	10	1.11	6
Increasing competition at home	5	4	0	0		5	8	0	0	13	1.44	2
Increasing competition abroad	5	4	0	0		5	8	0	0	13	1.44	2
Needing to entering new markets	5	4	0	0		5	8	0	0	13	1.44	2
Enforcement problems	7	2	0	0		7	4	0	0	11	1.22	5

10. How important to your product do you foresee the measures of the Directive being?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	1	2	3	4	Sum	Mean	Rank
New ENs/ETAs	2	5	3	0	2	10	9	0	21	2.1	2
New Conformity Procedures	1	5	4	0	1	10	12	0	23	2.3	1

Section 3: Market Environment

11. Has the Directive changed your business environment?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.11	1	2	3	4	Not at all	A little
	7	3	0	0	70%	30%
QU.6	1	2	3	4	Not at all	A little
	2	1	0	0	67%	33%
Total	9	4	0	0	69%	31%

12. Has the Directive led to a change in your firms market strategy? (Yes No)

a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2
	1	9
A	1	0

QU.7	1	2
	0	3
A	0	0

Only 1 Technical reply believes that the Directive has led to a change in their firms market strategy.

13. Is your company involved in any of these markets?

1=Before 1992 2=1992 – 1999

QU.13	1	2	QU.8	1	2	Total	
						1	2
UK	10	10		3	3	13	13
EU	5	7		1	2	6	9
EFTA	2	4		0	1	2	5
Rest of Europe	2	5		0	0	2	5
Others	3	5		0	2	3	7

14. Is your company looking at entering new markets?

1=New Home Markets 2=EU 3=EFTA 4=Rest of Europe 5=Others

6 Technical replies and all 3 Marketing replies are not looking to enter any new markets.

QU.14	1	2	3	4	5	No 6
Due to the Directive	1	0	1	1	0	
Due to the SEM	0	0	1	1	0	
Other reasons	1	0	0	1	1	

Marketing - No 3

If other reasons, name: Product Innovation

10. In response to the Directive which market entry strategy does your company already use or is likely to use in the future?

1=Not at all

2=A little

3=Quite a lot

4=A great deal

PAST												
QU.10	1	2	3	4								
Export - Direct	2	1	0	0	1	2	3	4	sum	mean	Rank	
Export - Indirect	2	1	0	0	2	2	0	0	4	1.33	6	
Government Buying Agencies	1	1	0	1	1	2	0	4	7	2.33	2	
Private Buying Agencies	1	1	0	1	1	2	0	4	7	2.33	2	
Agents	1	0	1	1	1	0	3	4	8	2.67	1	
Distributors	1	1	1	0	1	2	3	0	6	2.00	4	
Franchise	2	1	0	0	2	2	0	0	4	1.33	6	
Licence	2	1	0	0	2	2	0	0	4	1.33	6	
Joint Venture	3	0	0	0	3	0	0	0	3	1.00	11	
Merger	3	0	0	0	3	0	0	0	3	1.00	11	
Acquisition	2	1	0	0	2	2	0	0	4	1.33	6	
Direct Investment	1	1	0	0	No 1	1	2	0	0	3	1.50	5
FUTURE												
QU.10	1	2	3	4								
Export - Direct	2	1	0	0	1	2	3	4	sum	mean	Rank	
Export - Indirect	2	1	0	0	2	2	0	0	4	1.33	7	
Government Buying Agencies	1	1	0	1	1	2	0	4	7	2.33	2	
Private Buying Agencies	1	1	0	1	1	2	0	4	7	2.33	2	
Agents	1	0	1	1	1	0	3	4	8	2.67	1	
Distributors	1	0	2	0	1	0	6	0	7	2.33	4	
Franchise	2	1	0	0	2	2	0	0	4	1.33	7	
Licence	2	1	0	0	2	2	0	0	4	1.33	7	
Joint Venture	3	0	0	0	3	0	0	0	3	1.00	11	
Merger	3	0	0	0	3	0	0	0	3	1.00	11	
Acquisition	1	2	0	0	1	4	0	0	5	1.67	5	
Direct Investment	1	1	0	0	No 1	1	2	0	0	3	1.50	6

11. Is your company likely to use any other entry strategies in the future? (Yes No)

QU.11	1	2	No 1
	0	2	

12. If your company already is involved in foreign markets or is looking to new markets, how do you rate the assistance and awareness you have gained from:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

AWARENESS												
QU.12	1	2	3	4	No 2	1	2	3	4	sum	mean	Rank
<i>DTI/DOE Seminars</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Trade Visits by DOE/DTI</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Initiatives/Info. by DOE/DTI</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	0	1	0	0		0	2	0	0	2	2.00	4
<i>Participation in Exhibits</i>	0	1	0	0		0	2	0	0	2	2.00	4
<i>Sponsorships and Support for attending visits</i>	0	1	0	0		0	2	0	0	2	2.00	4
<i>Market Research</i>	0	1	0	0		0	2	0	0	2	2.00	4
ASSISTANCE												
QU.12	1	2	3	4	No 2	1	2	3	4	sum	mean	Rank
<i>DTI/DOE Seminars</i>	0	1	0	0		0	2	0	0	2	2.00	3
<i>Trade Visits by DOE/DTI</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Initiatives/Info. by DOE/DTI</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	0	1	0	0		0	2	0	0	2	2.00	3
<i>Participation in Exhibits</i>	0	1	0	0		0	2	0	0	2	2.00	3
<i>Sponsorships and Support for attending visits</i>	0	1	0	0		0	2	0	0	2	2.00	3
<i>Market Research</i>	0	1	0	0		0	2	0	0	2	2.00	3

15. Does your company believe it should have more support from: (Yes No)

QU.15	1	2		QU.13	1	2	No 1	Total		%	
								1	2	1	2
UK Government	4	5	No 1		1	1		5	6	45%	55%
European Commission	4	4	No 2		2	0		6	4	60%	40%

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all

2=A little

3=Quite a lot

4=A great deal

QU.16												
COST	1	2	3	4	No 2	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	0	5	3	0		0	10	9	0	19	2.38	2
Testing Procedures	0	5	3	0		0	10	9	0	19	2.38	2
Quality Assurances	2	4	2	0		2	8	6	0	16	2.00	7
Production Control	1	4	3	0		1	8	9	0	18	2.25	6
Affixing the CE Marking	0	5	3	0		0	10	9	0	19	2.38	2
Investment in Standards Committees	1	1	6	0		1	2	18	0	21	2.63	1
Investment in R&D	2	2	4	0		2	4	12	0	18	2.25	5
Re-organisation of company	4	4	0	0		4	8	0	0	12	1.50	9
Market Structure - Home	4	4	0	0		4	8	0	0	12	1.50	9
Market Structure - Abroad	3	5	0	0		3	10	0	0	13	1.63	8
IMPORTANCE	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	0	3	5		1	0	9	20	30	3.33	1
Testing Procedures	1	2	4	2		1	4	12	8	25	2.78	5
Quality Assurances	2	0	5	2		2	0	15	8	25	2.78	4
Production Control	1	2	5	1		1	4	15	4	24	2.67	6
Affixing the CE Marking	1	2	2	4		1	4	6	16	27	3.00	2
Investment in Standards Committees	1	2	2	4		1	4	6	16	27	3.00	2
Investment in R&D	2	2	4	1		2	4	12	4	22	2.44	7
Re-organisation of company	5	4	0	0		5	8	0	0	13	1.44	10
Market Structure - Home	4	5	0	0		4	10	0	0	14	1.56	9
Market Structure - Abroad	3	6	0	0		3	12	0	0	15	1.67	8
COST	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	0	2	0	0		0	4	0	0	4	2.00	1
Testing Procedures	0	2	0	0		0	4	0	0	4	2.00	1
Quality Assurances	0	2	0	0		0	4	0	0	4	2.00	1
Production Control	0	2	0	0		0	4	0	0	4	2.00	1
Affixing the CE Marking	0	2	0	0		0	4	0	0	4	2.00	1
Investment in Standards Committees	0	2	0	0		0	4	0	0	4	2.00	1
Investment in R&D	0	2	0	0		0	4	0	0	4	2.00	1
Re-organisation of company	0	2	0	0		0	4	0	0	4	2.00	1
Market Structure - Home	0	2	0	0		0	4	0	0	4	2.00	1
Market Structure - Abroad	1	1	0	0		1	2	0	0	3	1.50	10

IMPORTANCE	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
<i>Conforming to ENs/ETAs</i>	0	1	1	0		0	2	3	0	5	2.50	2
<i>Testing Procedures</i>	1	0	1	0		1	0	3	0	4	2.00	5
<i>Quality Assurances</i>	0	0	2	0		0	0	6	0	6	3.00	1
<i>Production Control</i>	0	2	0	0		0	4	0	0	4	2.00	7
<i>Affixing the CE Marking</i>	1	0	1	0		1	0	3	0	4	2.00	5
<i>Investment in Standards Committees</i>	0	1	1	0		0	2	3	0	5	2.50	2
<i>Investment in R&D</i>	0	1	1	0		0	2	3	0	5	2.50	2
<i>Re-organisation of company</i>	1	1	0	0		1	2	0	0	3	1.50	8
<i>Market Structure - Home</i>	1	1	0	0		1	2	0	0	3	1.50	8
<i>Market Structure - Abroad</i>	2	0	0	0		2	0	0	0	2	1.00	10

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10 2=10-20 3=20-30 4=30-50 5=50-100 6=100-500 7=>500

QU.17	1	2	3	4	5	6	7
	0	1	1	0	0	3	5
QU.17	1	2	3	4	5	6	7
	0	0	1	1	1	0	0

	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
Total	0	1	2	1	1	3	5	53%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	1	2	No 1	QU.18	1	2
	4	5			1	2

	1	2	Yes	No
Total	5	7	42%	58%

Cement Analysis

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

- a) European Single Market measures, e.g. changes to border controls?
- b) Breakdown of barriers to trade?

QU.1	1	2
A	3	0
B	3	0

QU.1	1	2
A	1	0
B	1	0

2. Is your company aware of the: (Yes No)

- a) European Construction Products Directive?
- b) UK Construction Products Regulations?

QU.2	1	2
A	3	0
B	3	0

QU.2	1	2
A	1	0
B	1	0

3. When did your company first become aware of:

1=Before 1992 2=1992 - 1994 3=1995 - 1997 4=1998 - 1999

- a) The Construction Products Directive
- b) The Construction Products Regulations

QU.3	1	2	3	4
A	1	0	2	0
B	0	1	2	0
QU.3	1	2	3	4
A	0	1	0	0
B	0	1	0	0

Before 1992
33%
0
0
0

4. What do you expect will be the effect of the Construction Products Directive on your product in: a) the domestic market b) the EU markets

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.4	1	2	3	4
A	1	2	0	0
B	1	0	2	0
QU.4	1	2	3	4
A	0	0	0	1
B	0	0	0	1

1	2	3	4	Sum	Mean	Rank	
1	4	0	0	5	1.67	2	
1	0	6	0	7	2.33	1	
QU.4	1	2	3	4	Sum	Mean	Rank
0	0	0	4	4	4	1	
0	0	0	4	4	4	1	

5. How important has the removal of other trade barriers been to your product and market share?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.5	1	2	3	4	1	2	3	4	Sum	Mean	R
Harmonisation of standards and testing procedures	0	0	0	1	0	0	0	4	4	4.00	1
Administrative Barriers (Customs)	0	0	1	0	0	0	3	0	3	3.00	2=
Frontier Delays and Costs	0	0	1	0	0	0	3	0	3	3.00	2=
Differences in VAT, excise taxes	0	1	0	0	0	2	0	0	2	2.00	5=
Transport Market Restrictions	0	1	0	0	0	2	0	0	2	2.00	5=
Implementation of EC law	0	0	1	0	0	0	3	0	3	3.00	2=
Others	0	0	0	0	0	0	0	0	0	0	

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1= AWARE

2= COMPLY

QU.5	1	2	No 1	Aware	Comply
Pressure Equipment Directive	1	1		33%	33%
Electromagnetic Compatibility Directive	0	0		0	0
Hot Water Boilers Directive	1	1		33%	33%
Machinery Directive	2	2		67%	67%
General Product Safety Directive	3	3		100%	100%
Packaging and Packaging Waste Directive	3	3		100%	100%
CE Marking Directive	2	0		67%	0
Others	0	0		0	0

Others: Public Procurement Directive

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2
	3	0

7. If yes, are you involved in: (Yes No)

QU.7	1	2
British Technical Standards Committees	2	0
European Technical Standards Committees	2	0
British Trade Organisations	3	0
European Trade Organisations	2	0

8. Does your company see the Directive as causing a THREAT by:

9. Does your company see the Directive an OPPORTUNITY due to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.8 THREAT	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	3	0	0	0		3	0	0	0	3	1.00	5
Weaker standards	1	1	0	0		1	2	0	0	3	1.00	3
Increasing competition at home	1	1	0	0		1	2	0	0	3	1.00	3
Increasing competition abroad	0	1	1	0		0	2	3	0	5	1.67	1
Needing to entering new markets	0	1	0	0		0	2	0	0	2	0.67	6
Enforcement problems	0	2	0	0		0	4	0	0	4	1.33	2
QU.9 OPPORTUNITY	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	0	1	2	0		0	2	6	0	8	2.67	1
Weaker standards	3	0	0	0		3	0	0	0	3	1.00	5
Increasing competition at home	3	0	0	0		3	0	0	0	3	1.00	5
Increasing competition abroad	2	1	0	0		2	2	0	0	4	1.33	3
Needing to entering new markets	0	2	0	0		0	4	0	0	4	1.33	2
Enforcement problems	1	1	0	0		1	2	0	0	3	1.00	4

10. How important to your product do you foresee the measures of the Directive being?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	1	2	3	4	Sum	Mean	Rank
New ENs/ETAs	0	1	2	0	0	2	6	0	8	2.67	1
New Conformity Procedures	0	0	2	0	0	0	6	0	6	2.00	2

Section 3: Market Environment

11. Has the Directive changed your business environment?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.11	1	2	3	4	Not at all	A little
	1	2	0	0	33%	67%
QU.6	1	2	3	4	Not at all	A little
	0	0	1	0	0	0
Total	1	2	1	0	25%	50%

12. Has the Directive led to a change in your firms market strategy? (Yes No)

a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2
	0	3
A	0	0

QU.7	1	2
	0	1
A	0	0

13. Is your company involved in any of these markets?

1=Before 1992 2=1992 – 1999

						Total	
QU.13	1	2	QU.8	1	2	1	2
UK	3	3		1	1	4	4
EU	2	1		1	1	3	2
EFTA	0	1		1	1	1	2
Rest of Europe	1	0		1	1	2	1
Others	1	0		1	1	2	1

14. Is your company looking at entering new markets?

1=New Home Markets 2=EU 3=EFTA 4=Rest of Europe 5=Others

1 Marketing reply is not looking to enter any new markets.

QU.14	1	2	3	4	5
Due to the Directive	0	0	0	0	0
Due to the SEM	0	0	0	0	0
Other reasons	3	2	1	0	0

Marketing - No 1

If other reasons, name: Commercial

10. In response to the Directive which market entry strategy does your company already use or is likely to use in the future?

1=Not at all

2=A little

3=Quite a lot

4=A great deal

PAST											
QU.10	1	2	3	4	1	2	3	4	sum	mean	Rank
Export - Direct	0	0	1	0	0	0	3	0	3	3.00	1=
Export - Indirect	1	0	0	0	1	0	0	0	0	1.00	3=
Government Buying Agencies	1	0	0	0	1	0	0	0	0	1.00	3=
Private Buying Agencies	1	0	0	0	1	0	0	0	0	1.00	3=
Agents	1	0	0	0	1	0	0	0	0	1.00	3=
Distributors	1	0	0	0	1	0	0	0	0	1.00	3=
Franchise	1	0	0	0	1	0	0	0	0	1.00	3=
Licence	1	0	0	0	1	0	0	0	0	1.00	3=
Joint Venture	1	0	0	0	1	0	0	0	0	1.00	3=
Merger	1	0	0	0	1	0	0	0	0	1.00	3=
Acquisition	0	0	1	0	0	0	3	0	3	3.00	1=
Direct Investment	1	0	0	0	1	0	0	0	0	1.00	3=
FUTURE											
QU.10	1	2	3	4	1	2	3	4	sum	mean	Rank
Export - Direct	0	0	1	0	0	0	3	0	3	3.00	1=
Export - Indirect	1	0	0	0	1	0	0	0	0	1.00	3=
Government Buying Agencies	1	0	0	0	1	0	0	0	0	1.00	3=
Private Buying Agencies	1	0	0	0	1	0	0	0	0	1.00	3=
Agents	1	0	0	0	1	0	0	0	0	1.00	3=
Distributors	1	0	0	0	1	0	0	0	0	1.00	3=
Franchise	1	0	0	0	1	0	0	0	0	1.00	3=
Licence	1	0	0	0	1	0	0	0	0	1.00	3=
Joint Venture	1	0	0	0	1	0	0	0	0	1.00	3=
Merger	1	0	0	0	1	0	0	0	0	1.00	3=
Acquisition	0	0	1	0	0	0	3	0	3	3.00	1=
Direct Investment	1	0	0	0	1	0	0	0	0	1.00	3=

11. Is your company likely to use any other entry strategies in the future? (Yes No)

QU.11	1	2
	0	1

12. If your company already is involved in foreign markets or is looking to new markets, how do you rate the assistance and awareness you have gained from:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

AWARENESS												
QU.12	1	2	3	4		1	2	3	4	sum	mean	Rank
<i>DTI/DOE Seminars</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Trade Visits by DOE/DTI</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Initiatives/Info. by DOE/DTI</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Participation in Exhibits</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Sponsorships and Support for attending visits</i>	0	0	1	0		0	0	3	0	3	3.00	1
<i>Market Research</i>	0	0	1	0		0	0	3	0	3	3.00	1
ASSISTANCE												
QU.12	1	2	3	4		1	2	3	4	sum	mean	Rank
<i>DTI/DOE Seminars</i>	1	0	0	0		1	0	0	0	1	1.00	1
<i>Trade Visits by DOE/DTI</i>	1	0	0	0		1	0	0	0	1	1.00	1
<i>Initiatives/Info. by DOE/DTI</i>	1	0	0	0		1	0	0	0	1	1.00	1
<i>Commercial Dep'ts of UK Consulates and Embassies</i>	1	0	0	0		1	0	0	0	1	1.00	1
<i>Participation in Exhibits</i>	1	0	0	0		1	0	0	0	1	1.00	1
<i>Sponsorships and Support for attending visits</i>	1	0	0	0		1	0	0	0	1	1.00	1
<i>Market Research</i>	1	0	0	0		1	0	0	0	1	1.00	1

15. Does your company believe it should have more support from: (Yes No)

QU.15	1	2		QU.13	1	2	Total		%	
							1	2	1	2
UK Government	1	1	No 1		0	1	1	2	33%	67%
European Commission	1	1	No 1		0	1	1	2	33%	67%

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.16												
COST	1	2	3	4	1	2	3	4	sum	mean	Rank	
Conforming to ENs/ETAs	2	1	0	0	2	2	0	0	4	1.33	5=	
Testing Procedures	0	3	0	0	0	6	0	0	6	2.00	1=	
Quality Assurances	1	2	0	0	1	4	0	0	5	1.67	4	
Production Control	2	1	0	0	2	2	0	0	4	1.33	5=	
Affixing the CE Marking	0	3	0	0	0	6	0	0	6	2.00	1=	
Investment in Standards Committees	0	3	0	0	0	6	0	0	6	2.00	1=	
Investment in R&D	2	1	0	0	2	2	0	0	4	1.33	5=	
Re-organisation of company	2	1	0	0	2	2	0	0	4	1.33	5=	
Market Structure - Home	2	1	0	0	2	2	0	0	4	1.33	5=	
Market Structure - Abroad	3	0	0	0	3	0	0	0	3	1.00	10	
IMPORTANCE	1	2	3	4	1	2	3	4	sum	mean	Rank	
Conforming to ENs/ETAs	1	1	1	0	1	2	3	0	6	2.00	5=	
Testing Procedures	0	0	3	0	0	0	9	0	9	3.00	1=	
Quality Assurances	0	0	3	0	0	0	9	0	9	3.00	1=	
Production Control	1	1	1	0	1	2	3	0	6	2.00	5=	
Affixing the CE Marking	0	1	2	0	0	1	6	0	7	2.33	3	
Investment in Standards Committees	0	3	0	0	0	6	0	0	6	2.00	4	
Investment in R&D	2	1	0	0	2	2	0	0	4	1.33	9=	
Re-organisation of company	2	1	0	0	2	2	0	0	4	1.33	9=	
Market Structure - Home	1	2	0	0	1	4	0	0	5	1.67	8	
Market Structure - Abroad	1	1	1	0	1	2	3	0	6	2.00	5=	
COST	1	2	3	4	1	2	3	4	sum	mean	Rank	
Conforming to ENs/ETAs	0	0	0	1	0	0	0	4	4	4.00	1=	
Testing Procedures	0	0	0	1	0	0	0	4	4	4.00	1=	
Quality Assurances	0	0	0	1	0	0	0	4	4	4.00	1=	
Production Control	0	1	0	0	0	2	0	0	2	2.00	6	
Affixing the CE Marking	0	0	0	1	0	0	0	4	4	4.00	1=	
Investment in Standards Committees	0	0	0	1	0	0	0	4	4	4.00	1=	
Investment in R&D	1	0	0	0	1	0	0	0	1	1.00	7=	
Re-organisation of company	1	0	0	0	1	0	0	0	1	1.00	7=	
Market Structure - Home	1	0	0	0	1	0	0	0	1	1.00	7=	
Market Structure - Abroad	1	0	0	0	1	0	0	0	1	1.00	7=	

IMPORTANCE	1	2	3	4		1	2	3	4	sum	mean	Rank
<i>Conforming to ENs/ETAs</i>	0	0	0	1		0	0	0	4	4	4.00	1=
<i>Testing Procedures</i>	0	0	0	1		0	0	0	4	4	4.00	1=
<i>Quality Assurances</i>	0	0	0	1		0	0	0	4	4	4.00	1=
<i>Production Control</i>	0	1	0	0		0	2	0	0	2	2.00	6
<i>Affixing the CE Marking</i>	0	0	0	1		0	0	0	4	4	4.00	1=
<i>Investment in Standards Committees</i>	0	0	0	1		0	0	0	4	4	4.00	1=
<i>Investment in R&D</i>	1	0	0	0		1	0	0	0	1	1.00	7=
<i>Re-organisation of company</i>	1	0	0	0		1	0	0	0	1	1.00	7=
<i>Market Structure - Home</i>	1	0	0	0		1	0	0	0	1	1.00	7=
<i>Market Structure - Abroad</i>	1	0	0	0		1	0	0	0	1	1.00	7=

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10 2=10-20 3=20-30 4=30-50 5=50-100 6=100-500 7=>500

QU.17	1	2	3	4	5	6	7
	0	0	0	0	0	2	1
QU.17	1	2	3	4	5	6	7
	0	0	0	0	0	0	1

	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
Total	0	0	0	0	0	2	2	100%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	1	2	No 1	QU.18	1	2
	0	3			1	0

	1	2	Yes	No
Total	1	3	25%	75%

Glass Analysis

There were no Marketing questionnaires returned.

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

- a) European Single Market measures, e.g. changes to border controls?
- b) Breakdown of barriers to trade?

QU.1	1	2
A	2	1
B	2	1

2. Is your company aware of the: (Yes No)

- a) European Construction Products Directive?
- b) UK Construction Products Regulations?

QU.2	1	2
A	3	0
B	2	1

3. When did your company first become aware of:

1=Before 1992 2=1992 - 1994 3=1995 - 1997 4=1998 - 1999

- a) The Construction Products Directive
- b) The Construction Products Regulations

QU.3	1	2	3	4	Before 1992
A	1	1	1	0	33%
B	1	1	1	0	33%

4. What do you expect will be the effect of the Construction Products Directive on your product in: a) the domestic market b) the EU markets

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.4	1	2	3	4
A	1	0	2	0
B	0	1	1	1

1	2	3	4	Sum	Mean	Rank
1	0	6	0	7	2.33	2
0	2	3	4	9	3.00	1

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1=Not at all

2= 1= AWARE

3= 2= COMPLY

QU.5	1	2	Aware	Comply
Pressure Equipment Directive	0	0	0	0
Electromagnetic Compatibility Directive	1	0	33%	0
Hot Water Boilers Directive	0	0	0	0
Machinery Directive	0	0	0	0
General Product Safety Directive	1	1	33%	33%
Packaging and Packaging Waste Directive	0	0	0	0
CE Marking Directive	3	1	100%	33%
Others	1	0	33%	0

Others: Low Voltage Directive

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2
	2	1

7. If yes, are you involved in: (Yes No)

QU.7	1	2
British Technical Standards Committees	2	0
European Technical Standards Committees	2	0
British Trade Organisations	2	0
European Trade Organisations	1	0

8. Does your company see the Directive as causing a THREAT by:

9. Does your company see the Directive an OPPORTUNITY due to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.8 THREAT	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	3	0	0	0		3	0	0	0	3	1.00	6
Weaker standards	1	1	0	1		1	2	0	4	7	2.33	2
Increasing competition at home	2	1	0	0		2	2	0	0	4	1.33	4=
Increasing competition abroad	2	1	0	0		2	2	0	0	4	1.33	4=
Needing to entering new markets	2	0	1	0		2	0	3	0	5	1.67	3
Enforcement problems	0	0	2	1		0	0	6	4	10	3.33	1
QU.9 OPPORTUNITY	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	0	1	2	0		0	2	6	0	8	2.67	2
Weaker standards	2	0	1	0		2	0	3	0	5	1.67	5
Increasing competition at home	2	1	0	0		2	2	0	0	4	1.33	6
Increasing competition abroad	1	1	1	0		1	2	3	0	6	2.00	3=
Needing to entering new markets	1	1	1	0		1	2	3	0	6	2.00	3=
Enforcement problems	1	0	1	1		1	0	3	4	8	2.67	1

10. How important to your product do you foresee the measures of the Directive being?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	1	2	3	4	Sum	Mean	Rank
New ENs/ETAs	0	1	1	1	0	2	3	4	9	3.00	1
New Conformity Procedures	0	1	0	1	0	2	0	4	6	2.00	2

Section 3: Market Environment

11. Has the Directive changed your business environment?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.11	1	2	3	4	Not at all	A little
	1	2	0	0	33%	67%

12. Has the Directive led to a change in your firms market strategy? (Yes No)

a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2
	1	2
A	0	1

13. Is your company involved in any of these markets?

1=Before 1992 2=1992 – 1999

QU.13	1	2
UK	3	3
EU	3	2
EFTA	1	1
Rest of Europe	3	2
Others	2	2

14. Is your company looking at entering new markets?

1=New Home Markets 2=EU 3=EFTA 4=Rest of Europe 5=Others

6 Technical replies and all 3 marketing replies are not looking to enter any new markets.

QU.14	1	2	3	4	5	No 1
Due to the Directive	0	0	0	0	0	
Due to the SEM	0	0	0	0	1	
Other reasons	0	0	0	1	1	

If other reasons, name: Due to Sales Requirements, Opening Access to Communist Countries

15. Does your company believe it should have more support from: (Yes No)

QU.15	1	2		Yes
UK Government	2	0	No 1	67%
European Commission	2	0	No 1	67%

18. Is your company a subsidiary of another company? (Yes No)

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all

2=A little

3=Quite a lot

4=A great deal

QU.16											
COST	1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	0	3	0	0	0	6	0	0	6	2.00	6=
Testing Procedures	0	2	1	0	0	4	3	0	7	2.33	3=
Quality Assurances	0	2	1	0	0	4	3	0	7	2.33	3=
Production Control	0	2	1	0	0	4	3	0	7	2.33	3=
Affixing the CE Marking	0	3	0	0	0	6	0	0	6	2.00	6=
Investment in Standards Committees	0	1	2	0	0	2	6	0	8	2.67	1
Investment in R&D	1	0	2	0	1	0	6	0	7	2.33	2
Re-organisation of company	1	2	0	0	1	4	0	0	5	1.67	10
Market Structure - Home	1	1	1	0	1	2	3	0	6	2.00	8=
Market Structure - Abroad	1	1	1	0	1	2	3	0	6	2.00	8=
IMPORTANCE	1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	0	1	1	1	0	2	3	4	9	3.00	2=
Testing Procedures	0	1	0	2	0	2	0	8	10	3.33	1
Quality Assurances	0	1	1	1	0	2	3	4	9	3.00	2=
Production Control	0	1	1	1	0	2	3	4	9	3.00	2=
Affixing the CE Marking	0	1	2	0	0	2	6	0	8	2.67	7
Investment in Standards Committees	0	1	1	1	0	2	3	4	9	3.00	2=
Investment in R&D	0	1	1	1	0	2	3	4	9	3.00	2=
Re-organisation of company	1	2	0	0	1	4	0	0	5	1.67	10
Market Structure - Home	1	0	2	0	1	0	6	0	7	2.33	8=
Market Structure - Abroad	1	0	2	0	1	0	6	0	7	2.33	8=

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10

2=10-20

3=20-30

4=30-50

5=50-100

6=100-500

7=>500

QU.17	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
	0	0	0	0	1	1	1	67%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	1	2
	3	0

Copper Analysis

There were no Marketing questionnaires returned.

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

- a) European Single Market measures, e.g. changes to border controls?
- b) Breakdown of barriers to trade?

QU.1	1	2
A	3	0
B	3	0

2. Is your company aware of the: (Yes No)

- a) European Construction Products Directive?
- b) UK Construction Products Regulations?

QU.2	1	2
A	3	0
B	2	1

3. When did your company first become aware of:

1=Before 1992 2=1992 - 1994 3=1995 - 1997 4=1998 - 1999

- a) The Construction Products Directive
- b) The Construction Products Regulations

QU.3	1	2	3	4	Before 1992
A	1	0	2	0	33%
B	0	0	1	1	0

4. What do you expect will be the effect of the Construction Products Directive on your product in: a) the domestic market b) the EU markets

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.4	1	2	3	4
A	1	1	0	0
B	1	1	0	0

1	2	3	4	Sum	Mean	Rank
1	2	0	0	3	1.50	1
1	2	0	0	3	1.50	1

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1=Not at all

2= 1= AWARE

3= 2= COMPLY

4=A great deal

QU.5	1	2	Aware	Comply
Pressure Equipment Directive	2	1	67%	33%
Electromagnetic Compatibility Directive	1	0	33%	0
Hot Water Boilers Directive	0	0	0	0
Machinery Directive	0	0	0	0
General Product Safety Directive	0	0	0	0
Packaging and Packaging Waste Directive	1	0	33%	0
CE Marking Directive	2	0	67%	0
Others	0	0	0	0

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2
	2	1

7. If yes, are you involved in: (Yes No)

QU.7	1	2
British Technical Standards Committees	2	0
European Technical Standards Committees	2	0
British Trade Organisations	1	0
European Trade Organisations	0	0

11. Has the Directive changed your business environment?

1=Not at all

2=A little

3=Quite a lot

4=A great deal

3	0	0	0	100%	0
---	---	---	---	------	---

8. Does your company see the Directive as causing a THREAT by: (Yes No)
9. Does your company see the Directive an OPPORTUNITY due to: at the introduction
- 1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.8 THREAT	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	3	0	0	0		3	0	0	0	3	1.00	4=
Weaker standards	2	1	0	0		2	2	0	0	4	1.33	1=
Increasing competition at home	3	0	0	0		3	0	0	0	3	1.00	4=
Increasing competition abroad	3	0	0	0		3	0	0	0	3	1.00	4=
Needing to entering new markets	2	1	0	0		2	2	0	0	4	1.33	1=
Enforcement problems	2	1	0	0		2	2	0	0	4	1.33	1=
QU.9 OPPORTUNITY	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	2	1	0	0		2	2	0	0	4	1.33	1=
Weaker standards	2	1	0	0		2	2	0	0	4	1.33	1=
Increasing competition at home	3	0	0	0		3	0	0	0	3	1.00	5=
Increasing competition abroad	3	0	0	0		3	0	0	0	3	1.00	5=
Needing to entering new markets	2	1	0	0		2	2	0	0	4	1.33	1=
Enforcement problems	2	1	0	0		2	2	0	0	4	1.33	1=

10. How important to your product do you foresee the measures of the Directive being?
- 1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	1	2	3	4	Sum	Mean	Rank
New ENs/ETAs	2	1	0	0	2	2	0	0	4	1.33	2
New Conformity Procedures	1	1	1	0	1	2	3	0	6	2.00	1

15. Does your company believe it should have more support from: (Yes No)

Section 3: Market Environment

11. Has the Directive changed your business environment? 33%
- 1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.11	1	2	3	4	Not at all	A little
	3	0	0	0	100%	0

12. Has the Directive led to a change in your firms market strategy? (Yes No)
- a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2
	0	3
A	0	0

13. Is your company involved in any of these markets?

1=Before 1992 2=1992 – 1999

QU.13	1	2
UK	3	3
EU	3	2
EFTA	2	1
Rest of Europe	1	2
Others	2	1

14. Is your company looking at entering new markets?

1=New Home Markets 2=EU 3=EFTA 4=Rest of Europe 5=Others

- 6 Technical replies and all 3 marketing replies are not looking to enter any new markets.

QU.14	1	2	3	4	5	No 1
Due to the Directive	0	0	0	0	0	
Due to the SEM	0	1	0	0	0	
Other reasons	0	0	0	1	1	

If other reasons, name: Diversification

15. Does your company believe it should have more support from: (Yes No)

QU.15	1	2	Yes
UK Government	1	1	No 1 33%
European Commission	1	1	No 1 33%

16. Is your company a subsidiary of another company? (Yes No)

	2	1
--	---	---

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all

2=A little

3=Quite a lot

4=A great deal

QU.16											
COST	1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	2	0	0	1	4	0	0	5	1.67	1=
Testing Procedures	1	2	0	0	1	4	0	0	5	1.67	1=
Quality Assurances	1	2	0	0	1	4	0	0	5	1.67	1=
Production Control	2	1	0	0	2	2	0	0	4	1.33	5=
Affixing the CE Marking	2	1	0	0	2	2	0	0	4	1.33	5=
Investment in Standards Committees	1	2	0	0	1	4	0	0	5	1.67	1=
Investment in R&D	2	1	0	0	2	2	0	0	4	1.33	5=
Re-organisation of company	3	0	0	0	3	0	0	0	3	1.00	8=
Market Structure - Home	3	0	0	0	3	0	0	0	3	1.00	8=
Market Structure - Abroad	3	0	0	0	3	0	0	0	3	1.00	8=
IMPORTANCE	1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	0	1	1	1	0	3	4	8	2.67	1
Testing Procedures	0	2	1	0	0	4	3	0	7	2.33	3
Quality Assurances	1	0	2	0	1	0	6	0	7	2.33	2
Production Control	2	1	0	0	2	2	0	0	4	1.33	6=
Affixing the CE Marking	2	1	0	0	2	2	0	0	4	1.33	6=
Investment in Standards Committees	1	2	0	0	1	4	0	0	5	1.67	4=
Investment in R&D	1	2	0	0	1	4	0	0	5	1.67	4=
Re-organisation of company	2	1	0	0	2	2	0	0	4	1.33	6=
Market Structure - Home	2	1	0	0	2	2	0	0	4	1.33	6=
Market Structure - Abroad	2	1	0	0	2	2	0	0	4	1.33	6=

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10

2=10-20

3=20-30

4=30-50

5=50-100

6=100-500

7=>500

QU.17	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
	0	0	0	0	1	2	0	67%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	1	2
	2	1

Builders Woodwork

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

- a) European Single Market measures, e.g. changes to border controls?
- b) Breakdown of barriers to trade?

QU.1	1	2
A	3	2
B	3	2

QU.1	1	2
A	3	0
B	3	0

2. Is your company aware of the: (Yes No)

- a) European Construction Products Directive?
- b) UK Construction Products Regulations?

QU.2	1	2
A	3	2
B	3	2

QU.2	1	2
A	3	0
B	3	0

3. When did your company first become aware of:

1=Before 1992 2=1992 - 1994 3=1995 - 1997 4=1998 - 1999

- a) The Construction Products Directive
- b) The Construction Products Regulations

QU.3	1	2	3	4		Before 1992
A	1	0	1	2	No 1	20%
B	0	0	1	3	No 1	0
QU.3	1	2	3	4		
A	0	1	2	0		0
B	0	1	2	0		0

4. What do you expect will be the effect of the Construction Products Directive on your product in: a) the domestic market b) the EU markets

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.4	1	2	3	4
A	0	5	0	0
B	1	3	1	0
QU.4	1	2	3	4
A	0	2	1	0
B	2	1	0	0

1	2	3	4	Sum	Mean	Rank
0	10	0	0	10	2.00	2
1	6	3	0	10	2.00	1
0	4	3	0	7	2.33	1
2	2	0	0	4	1.33	2

5. How important has the removal of other trade barriers been to your product and market share?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.5	1	2	3	4	1	2	3	4	Sum	Mean	R
Harmonisation of standards and testing procedures	2	0	1	0	2	0	3	0	5	1.67	5=
Administrative Barriers (Customs)	1	1	1	0	1	2	3	0	6	2.00	1=
Frontier Delays and Costs	1	1	1	0	1	2	3	0	6	2.00	1=
Differences in VAT, excise taxes	1	1	1	0	1	2	3	0	6	2.00	1=
Transport Market Restrictions	2	0	1	0	2	0	3	0	5	1.67	5=
Implementation of EC law	1	1	1	0	1	2	3	0	6	2.00	1=
Others	2	0	1	0	2	0	3	0	5	1.67	5=

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1= AWARE

2= COMPLY

QU.5	1	2	Aware	Comply
Pressure Equipment Directive	0	0	0	0
Electromagnetic Compatibility Directive	0	0	0	0
Hot Water Boilers Directive	0	0	0	0
Machinery Directive	2	1	40%	20%
General Product Safety Directive	1	0	20%	0
Packaging and Packaging Waste Directive	2	0	40%	0
CE Marking Directive	1	0	20%	0
Others	1	1	20%	20%

Others: Biocidal Products Directive

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2
	2	3

7. If yes, are you involved in: (Yes No)

QU.7	1	2	No 3
British Technical Standards Committees	1	0	
European Technical Standards Committees	2	0	
British Trade Organisations	1	0	
European Trade Organisations	0	0	

8. Does your company see the Directive as causing a THREAT by:

9. Does your company see the Directive an OPPORTUNITY due to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.8 THREAT	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Stronger standards	2	1	1	0		2	2	3	0	7	1.75	2
Weaker standards	3	1	0	0		3	2	0	0	5	1.25	4
Increasing competition at home	2	2	0	0		2	4	0	0	6	1.50	3
Increasing competition abroad	4	0	0	0		4	0	0	0	4	1.00	5=
Needing to entering new markets	4	0	0	0		4	0	0	0	4	1.00	5=
Enforcement problems	1	0	3	0		1	0	9	0	10	2.5	1
QU.9 OPPORTUNITY	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	3	1	0	0		3	2	0	0	5	1.25	1
Weaker standards	4	0	0	0		4	0	0	0	4	1.00	2=
Increasing competition at home	4	0	0	0		4	0	0	0	4	1.00	2=
Increasing competition abroad	4	0	0	0		4	0	0	0	4	1.00	2=
Needing to entering new markets	4	0	0	0		4	0	0	0	4	1.00	2=
Enforcement problems	4	0	0	0		4	0	0	0	4	1.00	2=

10. How important to your product do you foresee the measures of the Directive being?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	1	2	3	4	Sum	Mean	Rank
New ENs/ETAs	1	1	2	0	1	2	6	0	9	2.25	2
New Conformity Procedures	1	0	3	0	1	0	9	0	10	2.75	1

Section 3: Market Environment

11. Has the Directive changed your business environment?

1=Not at all

2=A little

3=Quite a lot

4=A great deal

QU.11	1	2	3	4	Not at all	A little
	4	1	0	0	80%	20%
QU.6	1	2	3	4	Not at all	A little
	0	2	1	0	0	67%
Total	4	3	1	0	50%	38%

12. Has the Directive led to a change in your firms market strategy? (Yes No)

a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2
	0	5
A	0	0

QU.7	1	2
	2	1
A	2	0

13. Is your company involved in any of these markets?

1=Before 1992

2=1992 – 1999

QU.13	1	2	QU.8	1	2	Total	
						1	2
UK	3	5		3	3	6	8
EU	3	1		1	1	4	2
EFTA	0	0		0	0	0	0
Rest of Europe	1	0		0	0	1	0
Others	0	0		0	0	0	0

14. Is your company looking at entering new markets?

1=New Home Markets

2=EU

3=EFTA

4=Rest of Europe

5=Others

3 Technical replies and 1 Marketing reply are not looking to enter any new markets.

QU.14	1	2	3	4	5	No 3	1
Due to the Directive	0	0	0	0	0		0
Due to the SEM	0	0	0	0	0		0
Other reasons	2	0	0	0	0		2

Marketing - No 1

If other reasons, name: Need to grow Business, Expanding Products to Compete with Alternative Materials, Market Development

10. In response to the Directive which market entry strategy does your company already use or is likely to use in the future?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

PAST											
QU.10	1	2	3	4	1	2	3	4	sum	mean	Rank
Export - Direct	2	1	0	0	2	2	0	0	4	1.33	1=
Export - Indirect	3	0	0	0	3	0	0	0	3	1.00	3=
Government Buying Agencies	3	0	0	0	3	0	0	0	3	1.00	3=
Private Buying Agencies	3	0	0	0	3	0	0	0	3	1.00	3=
Agents	3	0	0	0	3	0	0	0	3	1.00	3=
Distributors	2	1	0	0	2	2	0	0	4	1.33	1=
Franchise	3	0	0	0	3	0	0	0	3	1.00	3=
Licence	3	0	0	0	3	0	0	0	3	1.00	3=
Joint Venture	3	0	0	0	3	0	0	0	3	1.00	3=
Merger	3	0	0	0	3	0	0	0	3	1.00	3=
Acquisition	3	0	0	0	3	0	0	0	3	1.00	3=
Direct Investment	3	0	0	0	3	0	0	0	3	1.00	3=
FUTURE											
QU.10	1	2	3	4	1	2	3	4	sum	mean	Rank
Export - Direct	1	2	0	0	1	4	0	0	5	1.67	1=
Export - Indirect	2	1	0	0	2	2	0	0	4	1.33	5=
Government Buying Agencies	2	1	0	0	2	2	0	0	4	1.33	5=
Private Buying Agencies	1	2	0	0	1	4	0	0	5	1.67	1=
Agents	3	0	0	0	3	0	0	0	3	1.00	11=
Distributors	2	1	0	0	2	2	0	0	4	1.33	5=
Franchise	2	1	0	0	2	2	0	0	4	1.33	5=
Licence	2	1	0	0	2	2	0	0	4	1.33	5=
Joint Venture	2	1	0	0	2	2	0	0	4	1.33	5=
Merger	3	0	0	0	3	0	0	0	3	1.00	11=
Acquisition	1	2	0	0	1	4	0	0	5	1.67	1=
Direct Investment	1	2	0	0	1	4	0	0	5	1.67	1=

11. Is your company likely to use any other entry strategies in the future? (Yes No)

QU.11	1	2
	0	3

12. If your company already is involved in foreign markets or is looking to new markets, how do you rate the assistance and awareness you have gained from:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

AWARENESS/ ASSISTANCE				
QU.12				
DTI/DOE Seminars				
Trade Visits by DOE/DTI				
Initiatives/Info. by DOE/DTI	1 Reply = Not Applicable			
Commercial Dep'ts of UK Consulates and Embassies				
Participation in Exhibits	No 2			
Sponsorships and Support for attending visits				
Market Research				

15. Does your company believe it should have more support from: (Yes No)

QU.15			QU.13			No 2	Total		%	
	1	2		1	2		1	2	1	2
UK Government	4	1		1	0		5	1	83%	17%
European Commission	3	2		1	0		4	2	67%	33%

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.16												
COST												
	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	1	2	0		1	2	6	0	9	2.25	1
Testing Procedures	2	0	2	0		2	0	6	0	8	2.00	2
Quality Assurances	2	2	0	0		2	4	0	0	6	1.50	6=
Production Control	2	2	0	0		2	4	0	0	6	1.50	6=
Affixing the CE Marking	2	1	1	0		2	2	3	0	7	1.75	3=
Investment in Standards Committees	2	1	1	0		2	2	3	0	7	1.75	3=
Investment in R&D	3	0	1	0		3	0	3	0	6	1.50	5
Re-organisation of company	3	1	0	0		3	2	0	0	5	1.25	8=
Market Structure - Home	3	1	0	0		3	2	0	0	5	1.25	8=
Market Structure - Abroad	4	0	0	0		4	0	0	0	4	1.00	10

IMPORTANCE	1	2	3	4	No 1	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	1	2	0		1	2	6	0	9	2.25	1
Testing Procedures	2	1	1	0		2	2	3	0	7	1.75	4=
Quality Assurances	1	2	1	0		1	4	3	0	8	2.00	2
Production Control	2	1	1	0		2	2	3	0	7	1.75	4=
Affixing the CE Marking	2	2	0	0		2	4	0	0	6	1.50	7=
Investment in Standards Committees	2	2	0	0		2	4	0	0	6	1.50	7=
Investment in R&D	3	0	0	1		3	0	0	4	7	1.75	3
Re-organisation of company	3	1	0	0		3	2	0	0	5	1.25	9
Market Structure - Home	3	0	1	0		3	0	3	0	6	1.50	6
Market Structure - Abroad	4	0	0	0		4	0	0	0	4	1.00	10
COST	1	2	3	4		1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	1	1	0		1	2	3	0	6	2.00	6=
Testing Procedures	0	1	1	1		0	2	3	4	9	3.00	1
Quality Assurances	1	0	2	0		1	0	6	0	7	2.33	3
Production Control	2	0	1	0		2	0	3	0	5	1.67	9
Affixing the CE Marking	0	1	2	0		0	2	6	0	8	2.67	2
Investment in Standards Committees	1	1	1	0		1	2	3	0	6	2.00	6=
Investment in R&D	1	1	1	0		1	2	3	0	6	2.00	6=
Re-organisation of company	2	1	0	0		2	2	0	0	4	1.33	10
Market Structure - Home	1	1	0	1		1	2	0	4	7	2.33	4
Market Structure - Abroad	2	0	0	1		2	0	0	4	6	2.00	5
IMPORTANCE	1	2	3	4		1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs	1	1	1	0		1	2	3	0	6	2.00	4=
Testing Procedures	1	1	1	0		1	2	3	0	6	2.00	4=
Quality Assurances	0	1	2	0		0	2	6	0	8	2.67	1
Production Control	1	1	1	0		1	2	3	0	6	2.00	4=
Affixing the CE Marking	0	2	1	0		0	4	3	0	7	2.33	3
Investment in Standards Committees	1	1	1	0		1	2	3	0	6	2.00	4=
Investment in R&D	1	1	1	0		1	2	3	0	6	2.00	4=
Re-organisation of company	3	0	0	0		3	0	0	0	3	1.00	9=
Market Structure - Home	1	1	0	1		1	2	0	4	7	2.33	2
Market Structure - Abroad	3	0	0	0		3	0	0	0	3	1.00	9=

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10 2=10-20 3=20-30 4=30-50 5=50-100 6=100-500 7=>500

QU.17	1	2	3	4	5	6	7
	0	2	1	0	1	1	0
QU.17	1	2	3	4	5	6	7
	0	0	0	0	2	1	0

	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
Total	0	2	1	0	3	2	0	25%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	1	2	No 1	QU.18	1	2
	3	2			1	2

	1	2	Yes	No
Total	4	4	50%	50%

Mineral Wool Analysis

Section 1 European Awareness

1. Is your company aware of any of the: (Yes No)

- a) European Single Market measures, e.g. changes to border controls?
- b) Breakdown of barriers to trade?

QU.1	1	2
A	2	0
B	1	1

QU.1	1	2
A	5	0
B	4	1

2. Is your company aware of the: (Yes No)

- a) European Construction Products Directive?
- b) UK Construction Products Regulations?

QU.2	1	2
A	2	0
B	2	0

QU.2	1	2
A	5	0
B	4	1

3. When did your company first become aware of:

1=Before 1992 2=1992 - 1994 3=1995 - 1997 4=1998 - 1999

- a) The Construction Products Directive
- b) The Construction Products Regulations

QU.3	1	2	3	4
A	2	0	0	0
B	1	0	0	1
QU.3	1	2	3	4
A	2	1	1	1
B	2	1	0	1

Before 1992
100%
50%
40%
40%

4. What do you expect will be the effect of the Construction Products Directive on your product in: a) the domestic market b) the EU markets

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.4	1	2	3	4
A	0	1	0	1
B	0	1	0	1
QU.4	1	2	3	4
A	1	2	1	0
B	1	0	2	0

No 1	1	2	3	4	Sum	Mean	Rank
	0	2	0	4	6	3.00	1
	0	2	0	4	6	3.00	1
No 1	1	4	3	0	8	2.00	2
No 2	1	0	6	0	7	2.33	1

5. How important has the removal of other trade barriers been to your product and market share?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.5	1	2	3	4	1	2	3	4	Sum	Mean	R
Harmonisation of standards and testing procedures	2	2	0	1	2	4	0	4	10	2.00	1
Administrative Barriers (Customs)	4	1	0	0	4	2	0	0	6	1.20	5=
Frontier Delays and Costs	4	1	0	0	4	2	0	0	6	1.20	5=
Differences in VAT, excise taxes	4	0	1	0	4	0	3	0	7	1.40	3
Transport Market Restrictions	3	2	0	0	3	4	0	0	7	1.40	4
Implementation of EC law	3	1	1	0	3	2	3	0	8	1.60	2
Others	2	0	0	0	2	0	0	0	2		

If others name: National Standards of Germany and France

5. Is your company aware of any other EC Directives relating to your product, and if so, does your product comply?

1= AWARE 2= COMPLY

QU.5	1	2	No 1	Aware	Comply
Pressure Equipment Directive	0	0		0	0
Electromagnetic Compatibility Directive	0	0		0	0
Hot Water Boilers Directive	0	0		0	0
Machinery Directive	1	0		50%	0
General Product Safety Directive	1	0		50%	0
Packaging and Packaging Waste Directive	0	0		0	0
CE Marking Directive	1	0		50%	0
Others	1	0		50%	0

Others: Public Liability and Procurement

Section 2: The Construction Products Directive

(Hereafter referred to as the Directive)

6. Is your company actively involved with the implementation of the Directive?

(Yes No)

QU.6	1	2
	2	0

7. If yes, are you involved in: (Yes No)

QU.7	1	2
British Technical Standards Committees	1	0
European Technical Standards Committees	2	0
British Trade Organisations	2	0
European Trade Organisations	1	0

8. Does your company see the Directive as causing a THREAT by:

9. Does your company see the Directive an OPPORTUNITY due to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

a) If yes, would your company have changed the strategy even without the introduction

QU.8 THREAT	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	1	1	0	0		1	2	0	0	3	1.50	3=
Weaker standards	2	0	0	0		2	0	0	0	2	1.00	5=
Increasing competition at home	0	2	0	0		0	4	0	0	4	2.00	2
Increasing competition abroad	1	1	0	0		1	2	0	0	3	1.50	3=
Needing to entering new markets	2	0	0	0		2	0	0	0	2	1.00	5=
Enforcement problems	0	0	1	1		0	0	3	4	7	3.50	1
QU.9 OPPORTUNITY	1	2	3	4		1	2	3	4	sum	mean	Rank
Stronger standards	1	0	0	1		1	0	0	4	5	2.50	1
Weaker standards	2	0	0	0		2	0	0	0	2	1.00	2=
Increasing competition at home	2	0	0	0		2	0	0	0	2	1.00	2=
Increasing competition abroad	2	0	0	0		2	0	0	0	2	1.00	2=
Needing to entering new markets	2	0	0	0		2	0	0	0	2	1.00	2=
Enforcement problems	2	0	0	0		2	0	0	0	2	1.00	2=

10. How important to your product do you foresee the measures of the Directive being?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.10	1	2	3	4	1	2	3	4	Sum	Mean	Rank
New ENs/ETAs	0	1	0	1	0	2	0	4	6	3.00	2
New Conformity Procedures	0	0	1	1	0	0	3	4	7	3.50	1

Due to the Directive	0	0	0	0	0	1					
Due to the SEM	0	0	0	0	0	0					
Other reasons	1	0	0	0	0	0					

Section 3: Market Environment

11. Has the Directive changed your business environment?

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.11	1	2	3	4	Not at all	A little
	1	0	0	1	50%	0
QU.6	1	2	3	4	Not at all	A little
	1	2	2	0	20%	40%
Total	2	2	2	1	29%	29%

12. Has the Directive led to a change in your firms market strategy? (Yes No)

a) If yes, would your company have changed the strategy even without the introduction of the Directive? (Yes No)

QU.12	1	2
	1	1
A	0	1

QU.7	1	2
	2	3
A	0	2

1 Technical reply and 2 Marketing replies have changed their strategies because of the CPD.

13. Is your company involved in any of these markets?

1=Before 1992 2=1992 – 1999

QU.13	1	2	QU.8	1	2	Total	
						1	2
UK	2	2		5	5	7	7
EU	2	2		3	1	5	3
EFTA	1	1		1	0	2	1
Rest of Europe	1	1		2	0	3	1
Others	0	1		1	0	1	1

14. Is your company looking at entering new markets?

1=New Home Markets 2=EU 3=EFTA 4=Rest of Europe 5=Others

1 Technical reply and 4 Marketing replies are not looking to enter any new markets.

QU.14	1	2	3	4	5	No 1	1
Due to the Directive	0	0	0	0	0		1
Due to the SEM	0	0	0	0	0		0
Other reasons	1	0	0	0	0		0

Marketing - No 4

If other reasons, name: Increasing Sales, Traditional Markets Threatened by unrestricted Number of Imports – Entering new Markets with New Products

10. In response to the Directive which market entry strategy does your company already use or is likely to use in the future?

1=Not at all

2=A little

3=Quite a lot

4=A great deal

PAST												
QU.10	1	2	3	4	1	2	3	4	sum	mean	Rank	
Export - Direct	3	2	0	0	3	4	0	0	7	1.40	5	
Export - Indirect	5	0	0	0	5	0	0	0	5	1.00	8=	
Government Buying Agencies	4	1	0	0	4	2	0	0	6	1.20	6=	
Private Buying Agencies	4	0	1	0	4	0	3	0	7	1.40	4	
Agents	2	2	0	1	2	4	0	4	10	2.00	2	
Distributors	1	1	1	2	1	2	3	8	14	2.80	1	
Franchise	5	0	0	0	5	0	0	0	5	1.00	8=	
Licence	5	0	0	0	5	0	0	0	5	1.00	8=	
Joint Venture	3	1	1	0	3	2	3	0	7	1.40	3	
Merger	5	0	0	0	5	0	0	0	5	1.00	8=	
Acquisition	4	1	0	0	4	2	0	0	6	1.20	6=	
Direct Investment	5	0	0	0	5	0	0	0	5	1.00	8=	
FUTURE												
QU.10	1	2	3	4	1	2	3	4	sum	mean	Rank	
Export - Direct	3	2	0	0	3	4	0	0	7	1.40	6	
Export - Indirect	4	1	0	0	4	2	0	0	6	1.20	7=	
Government Buying Agencies	5	0	0	0	5	0	0	0	5	1.00	11=	
Private Buying Agencies	4	0	1	0	4	0	3	0	7	1.40	4=	
Agents	2	1	1	1	2	2	3	4	11	2.20	2	
Distributors	2	0	1	2	2	0	3	8	13	2.60	1	
Franchise	4	1	0	0	4	2	0	0	6	1.20	7=	
Licence	4	1	0	0	4	2	0	0	6	1.20	7=	
Joint Venture	3	0	2	0	3	0	6	0	9	1.80	3	
Merger	4	1	0	0	4	2	0	0	6	1.20	7=	
Acquisition	4	0	1	0	4	0	3	0	7	1.40	4=	
Direct Investment	5	0	0	0	5	0	0	0	5	1.00	11=	

11. Is your company likely to use any other entry strategies in the future? (Yes No)

QU.11	1	2
	0	5

12. If your company already is involved in foreign markets or is looking to new markets, how do you rate the assistance and awareness you have gained from:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

AWARENESS											
QU.12	1	2	3	4	1	2	3	4	sum	mean	Rank
DTI/DOE Seminars	1	0	1	0	1	0	3	0	4	2.00	2
Trade Visits by DOE/DTI	1	1	0	0	1	2	0	0	3	1.50	3
Initiatives/Info. by DOE/DTI	1	0	0	0	1	0	0	0	1	0.50	6=
Commercial Dep'ts of UK Consulates and Embassies	0	1	0	0	0	2	0	0	2	1.00	4=
Participation in Exhibits	0	1	0	0	0	2	0	0	2	1.00	4=
Sponsorships and Support for attending visits	1	0	0	0	1	0	0	0	1	0.50	6=
Market Research	0	0	2	0	0	0	6	0	6	3.00	1
ASSISTANCE											
QU.12	1	2	3	4	1	2	3	4	sum	mean	Rank
DTI/DOE Seminars	1	0	1	0	1	0	3	0	4	2.00	2
Trade Visits by DOE/DTI	1	1	0	0	1	2	0	0	3	1.50	3
Initiatives/Info. by DOE/DTI	1	0	0	0	1	0	0	0	1	0.50	5=
Commercial Dep'ts of UK Consulates and Embassies	0	1	0	0	0	2	0	0	2	1.00	4=
Participation in Exhibits	0	1	0	0	0	2	0	0	2	1.00	4=
Sponsorships and Support for attending visits	1	0	0	0	1	0	0	0	1	0.50	5=
Market Research	0	0	2	0	0	0	6	0	6	3.00	1

15. Does your company believe it should have more support from: (Yes No)

QU.15	1	2	QU.13	1	2	No I	Total		%	
							1	2	1	2
UK Government	2	0		3	1		5	1	83%	17%
European Commission	2	0		3	1		5	1	83%	17%

16. How important is the Directive, or do you foresee it being, to your firm with regards to:

1=Not at all 2=A little 3=Quite a lot 4=A great deal

QU.16															
COST					1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs					0	1	0	1	0	2	0	4	6	3.00	1=
Testing Procedures					1	0	0	1	1	0	0	4	5	2.50	3=
Quality Assurances					1	0	0	1	1	0	0	4	5	2.50	3=
Production Control					1	0	0	1	1	0	0	4	5	2.50	3=
Affixing the CE Marking					1	0	0	1	1	0	0	4	5	2.50	3=
Investment in Standards Committees					0	1	0	1	0	2	0	4	6	3.00	1=
Investment in R&D					1	1	0	0	1	2	0	0	3	1.50	7=
Re-organisation of company					1	1	0	0	1	2	0	0	3	1.50	7=
Market Structure - Home					1	1	0	0	1	2	0	0	3	1.50	7=
Market Structure - Abroad					1	1	0	0	1	2	0	0	3	1.50	7=
IMPORTANCE					1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs					0	1	0	1	0	2	0	4	6	3.00	1=
Testing Procedures					1	0	0	1	1	0	0	4	5	2.50	4=
Quality Assurances					0	1	0	1	0	2	0	4	6	3.00	1=
Production Control					1	0	0	1	1	0	0	4	5	2.50	4=
Affixing the CE Marking					1	0	0	1	1	0	0	4	5	2.50	4=
Investment in Standards Committees					0	1	0	1	0	2	0	4	6	3.00	1=
Investment in R&D					1	1	0	0	1	2	0	0	3	1.50	7=
Re-organisation of company					1	1	0	0	1	2	0	0	3	1.50	7=
Market Structure - Home					1	1	0	0	1	2	0	0	3	1.50	7=
Market Structure - Abroad					1	1	0	0	1	2	0	0	3	1.50	7=
COST					1	2	3	4	1	2	3	4	sum	mean	Rank
Conforming to ENs/ETAs					0	2	2	0	0	4	6	0	10	2.50	1=
Testing Procedures					0	2	2	0	0	4	6	0	10	2.50	1=
Quality Assurances					0	2	2	0	0	4	6	0	10	2.50	1=
Production Control					0	3	1	0	0	6	3	0	9	2.25	6=
Affixing the CE Marking					0	3	1	0	0	6	3	0	9	2.25	6=
Investment in Standards Committees					0	2	2	0	0	4	6	0	10	2.50	1=
Investment in R&D					0	2	2	0	0	4	6	0	10	2.50	1=
Re-organisation of company					2	0	2	0	2	0	6	0	8	2.00	8
Market Structure - Home					2	1	1	0	2	2	3	0	7	1.75	9
Market Structure - Abroad					2	2	0	0	2	4	0	0	6	1.50	10

IMPORTANCE	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	sum	mean	Rank
<i>Conforming to ENs/ETAs</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>0</i>		<i>1</i>	<i>2</i>	<i>6</i>	<i>0</i>	<i>9</i>	<i>2.25</i>	<i>2=</i>
<i>Testing Procedures</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>0</i>		<i>1</i>	<i>2</i>	<i>6</i>	<i>0</i>	<i>9</i>	<i>2.25</i>	<i>2=</i>
<i>Quality Assurances</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>0</i>		<i>1</i>	<i>2</i>	<i>6</i>	<i>0</i>	<i>9</i>	<i>2.25</i>	<i>2=</i>
<i>Production Control</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>0</i>		<i>1</i>	<i>2</i>	<i>6</i>	<i>0</i>	<i>9</i>	<i>2.25</i>	<i>2=</i>
<i>Affixing the CE Marking</i>	<i>1</i>	<i>3</i>	<i>0</i>	<i>0</i>		<i>1</i>	<i>6</i>	<i>0</i>	<i>0</i>	<i>7</i>	<i>1.75</i>	<i>9</i>
<i>Investment in Standards Committees</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>0</i>		<i>1</i>	<i>2</i>	<i>6</i>	<i>0</i>	<i>9</i>	<i>2.25</i>	<i>2=</i>
<i>Investment in R&D</i>	<i>1</i>	<i>0</i>	<i>3</i>	<i>0</i>		<i>1</i>	<i>0</i>	<i>9</i>	<i>0</i>	<i>10</i>	<i>2.50</i>	<i>1</i>
<i>Re-organisation of company</i>	<i>1</i>	<i>1</i>	<i>2</i>	<i>0</i>		<i>1</i>	<i>2</i>	<i>6</i>	<i>0</i>	<i>9</i>	<i>2.25</i>	<i>2=</i>
<i>Market Structure - Home</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>0</i>		<i>1</i>	<i>4</i>	<i>3</i>	<i>0</i>	<i>8</i>	<i>2.00</i>	<i>8</i>
<i>Market Structure - Abroad</i>	<i>2</i>	<i>2</i>	<i>0</i>	<i>0</i>		<i>2</i>	<i>4</i>	<i>0</i>	<i>0</i>	<i>6</i>	<i>1.50</i>	<i>10</i>

Section 4: Background Information

17. How many people did your company employ last year?

1=1-10 2=10-20 3=20-30 4=30-50 5=50-100 6=100-500 7=>500

QU.17	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>0</i>
QU.17	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
	<i>0</i>	<i>0</i>	<i>2</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1</i>

	1-10	10-20	20-30	30-50	50-100	100-500	>500	100+
Total	0	0	2	1	1	2	1	43%

18. Is your company a subsidiary of another company? (Yes No)

QU.18	<i>1</i>	<i>2</i>		QU.18	<i>1</i>	<i>2</i>
	<i>2</i>	<i>0</i>			<i>4</i>	<i>1</i>

	1	2	Yes	No
Total	6	1	86%	14%

APPENDIX C

UK BRICK INDUSTRY INTERVIEWS

- 1. Interview Documents**
- 2. Details of Interviewees**
- 3. Results of the Total Interviews**
- 4. SWOT Analysis – Individual Companies and for the UK Brick Industry.**

If yes, what:

Are you aware of the 6 requirements of the CPD, and can you name them: Yes No

Mechanical Resistance and Stability

Safety in Case of Fire

Health Hygiene and the Environment

Safety in Use

Protection from Noise

Energy, economy and heat retention

What would you say was/are the most important or will impinge the most on the brick standard:

How do you comply with the current British Standard, BS 3921:

(Testing bodies, Factory Production Control)

Is or will the CPD have the most impact on your company compared to other EU legislation: Yes No

If no, which legislation does: (Rank in order of importance 1=Very, 5=not)

Environmental Directives

Working/Social Directives

Transportation Directives

Monetary/ Capital/ Services Directives

Others:

Do you see the UK market changing for the better or worse in the next 10 years with the advent of a new EU standard for bricks (under the CPD):

Scale 1=very, 5=not

Do you think that the position is the same for the majority of other EU countries:

Yes No

Why:

Do you comply with any other international/European standards: Yes No

Name them:

Do you see the CPD as making difference to your product: Yes No

Why:

Do you see it making a difference to the UK brick industry: Yes No

Why:

Do you think we need harmonised European Standards for bricks: Yes No

Why:

Market Environment

What do you class your market as:

- Local
- Regional
- National
- European
- International

What would you say was your market sector from the following, rank in order 1= major, 5=minor:

- Conservation
- Repair/Maintenance
- Small Works/ Extensions/ Single homes
- Small builders/ small-medium projects
- Large scale projects

Others:

How would you best describe the market segment you are in:

- Niche – specialised products to specialised market
- General
- Construction Market – wide market

Others:

How is your product sold / marketed through, what %:

- Distributors – builders merchants
- Any contracts / agreements
- Direct to Contractors
- Client / Designer links (Reputation)
- Internet Sources

Others:

Have you considered any of the following:

- Partnering
 - direct relationship with suppliers and customers builders merchants) Yes No
 - working closer with designers and clients 'offering after sales service' Yes No
- Integration of the supply chain Yes No
- E-commerce – increased use of the internet to advertise and sell goods, cuts out the middleman. Yes No

Others:

Does any local planning requirements influence your market i.e. must use materials that match existing: Yes No

Do you at present use any of the following: Yes No

Exports

- Exporting can be either direct or indirect.

Franchising

Licensing

Open a Branch Office / Subsidiary

- A Branch Office is an extension of the parent company.
- A subsidiary is like a small company on its own, with its own Board of Directors.

Joint Ventures

- Mutual Benefit
- Multi-party
- Dual-nationality

Mergers and Acquisitions (M&A's)

Would you consider any of the above as a future strategy: Yes No Possibly

Name:

Has there been a change in your market due to the SEM measures: Yes No

If yes, what:

Do you class the CPD as on of the SEM measures: Yes No

Why:

Do you see your market changing over the next 10years: Yes No

If so, how:

More Competition in local markets

Unable to cope with larger scale production

More cheaper EU products on the market

Technology advances

Environmentally friendly products/ systems

Natural Resource Restrictions

Others:

Who do you see as your major competitors at present (Rank 1=major, 5=minor):

Local brick manufacturers

UK national manufacturers

European Brick manufacturers

Exporting

Acquiring UK firms

New Technology – Products / Systems

Others:

From the above rank the top 3, in the future:

1.

2.

3.

Marketing Strategy

Would you say it falls into 1 of these:

Cost Leadership

Product Differentiation

Focus – Market / Product Group

If not, how would you describe it:

What does your firm see as being its Competitive Advantage?

Skills and Resources – does the firm have any of these:

Yes No

Sustained capital investment and access to capital

Process engineering skills

Intense supervision of labour

Products designed for ease in manufacture

Low cost distribution system

Strong marketing abilities

Product engineering

Creative flair

Strong capability in basic research

Corporate reputation for quality or technological leadership

Long tradition in the industry or unique combination of skills drawn from other businesses

Strong cooperation from channels

Company Information

Natural Resources (Clay Extraction)

How long do you foresee your mineral resources lasting for and do you have another source to use and do you have the planning permission:

What type of clay do you use:

What manufacturing process do you use:

What kiln types:

What is your brick capacity per year:

Barriers to Entry

The following are a list of entry barriers to a market, how important do you see them as barriers to entry into the brick industry:

Issues	Importance			
	Not at all	A little	Quite a lot	A great deal
Cost advantages of incumbents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capital requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to distribution channels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advertising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research and Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Divisionalisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology and technological change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selling expenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Market concentration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand name or trademark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incumbent's expected reaction to market entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seller concentration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Government Policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer switching costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product differentiation of incumbents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possession of strategic raw materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sunk costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CURRENT ISSUES FOR PRODUCT MAUFACTURERS

Issues	Importance			
	Not at all	A little	Quite a lot	A great deal
Supply chain logistics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Taxation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management style/Respect for People	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Role of Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
European Union	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IT/e-commerce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Globalisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consolidation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign ownership/ foreign direct investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental issues/sustainability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exchange rates/the Euro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Off site assembly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partnering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Efficiency/productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outsourcing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FUTURE ISSUES FOR PRODUCT MAUNFACTURERS

Issues	Importance			
	Not at all	A little	Quite a lot	A great deal
Supply chain logistics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Taxation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management style/Respect for People	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Role of Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
European Union	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IT/e-commerce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Globalisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consolidation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign ownership/ foreign direct investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental issues/sustainability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exchange rates/the Euro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Off site assembly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partnering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Efficiency/productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outsourcing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CASE STUDY: TRADE ASSOCIATIONS

Name:

Title in Organisation:

Roles & Responsibilities:

Definition of Organisations:

Definition of Brick Industry:

Are you a non-profit organisation: Yes No

How are you funded:

%	Gov't	Members	Others:
---	-------	---------	---------

How many members do you have:

%	Small
	Medium
	Large
	Associations
	Others:

Organisation Goals (Mission Statement):

What do you see the role of the association as being within the UK:

Involvement with the CPD

Describe what the CPD aims to achieve:

What do you see as the organisations role with regards to the CPD:

How do you convey info. about the CPD to members:

Post – Leaflets

Trade Magazine

Electronic sources

Others:

Do you get much feedback from members: Yes No

Is it positive or negative: P N

Why:

Are you a member of any European or International organisations: Yes No

Name:

In what capacity:

Do you see the UK market changing for the better or worse in the next 10 years with the advent of a new EU standard for bricks (under the CPD):

Scale 1=very, 5=not

Do you think that the position is the same for the majority of other EU countries: Yes No

Why:

Do you see the CPD as making a difference to bricks in the UK: Yes No

Why:

Do you see it making a difference to the UK brick industry: Yes No

Why:

Do you think we need harmonised European Standards for bricks: Yes No

Why:

Market Environment

What do you class your market as:

Local

Regional

National

European

International

What would you say was the market sectors for the brick industry from the following, rank in order 1= major, 5=minor:

Conservation

Repair/Maintenance

Small Works/ Extensions/ Single homes

Small builders/ small-medium projects

Large scale projects

Others:

How do you think bricks are sold / marketed through, what %:

Distributors – builders merchants

contracts / agreements

Direct to Contractors

Client / Designer links (Reputation)

Internet Sources

Others:

Are you aware of any of the following being used/introduced into the brick industry:

- Partnering
 - direct relationship with suppliers and customers builders merchants) Yes No
 - working closer with designers and clients 'offering after sales service'. Yes No
- Integration of the supply chain Yes No
- E-commerce – increased use of the internet to advertise and sell goods, cuts out the middleman. Yes No

Any others:

How much do you think local planning requirements influence the brick market i.e.

must use materials that match existing: Not at all A little Quite a lot A great deal

Why:

Do you think it is the same in other EU countries: Yes No

Why:

Which of the following do you think are being used by brick producers at present:

Exports

- Exporting can be either direct or indirect.

Franchising

Licensing

Open a Branch Office / Subsidiary

- A Branch Office is an extension of the parent company.
- A subsidiary is like a small company on its own, with its own Board of Directors.

Joint Ventures

- Mutual Benefit
- Multi-party
- Dual-nationality

Mergers and Acquisitions (M&A's)

Do you think any would be a possibility for the future if not at present: Yes No
Possibly

Name:

Do you think there has been a change in the brick market due to the SEM measures:

Yes No

If yes, what:

Do you class the CPD as on of the SEM measures: Yes No

Why:

Do you see the brick market changing over the next 10years: Yes No

If so, how:

More Competition in local markets

Unable to cope with larger scale production

More cheaper EU products on the market

Technology advances

Environmentally friendly products/ systems

Natural Resource Restrictions

Others:

Who do you see as the major competitors at present (Rank 1=major, 5=minor):

Local brick manufacturers

UK national manufacturers

European Brick manufacturers

Exporting

Acquiring UK firms

New Technology – Products / Systems

Others:

From the above rank the top 3, in the future:

1.

2.

3.

Marketing Strategy

Of the following, which would you say is the strategy most used by brick

Manufacturers:

Cost Leadership

Small

Medium

Large

Product Differentiation

Focus – Market / Product Group

If not, how would you describe it:

What do you see as the brick industries Competitive Advantage?

Skills and Resources – do you think these are important to brick manufacturers: Yes No

Sustained capital investment and access to capital

Process engineering skills

Intense supervision of labour

Products designed for ease in manufacture

Low cost distribution system

Strong marketing abilities

Product engineering

Creative flair

Strong capability in basic research

Corporate reputation for quality or technological leadership

Long tradition in the industry or unique combination of skills drawn from other businesses

Strong cooperation from channels

Information

Natural Resources (Clay Extraction)

How long do you foresee mineral resources lasting in the UK for brick manufacturing:

Do you think it will become harder for brick manufacturers to find new sites and gain planning permission in the future: Yes No

Why:

What manufacturing process are used most in the UK:

Is this different to Europe:

What is the UK brick capacity per year:

How many people are employed in the UK brick industry:

Europe:

What is the total turnover of brick manufacture in the UK:

Europe:

Table 26: Information on the Companies involved in the Case Study Interviews

Company	Interviewee	Position	Independent	Group	Size by Employee	Size by Turnover	Brick Capacity per Year
The Bulmer Brick & Tile Ltd	Mr Peter Minter	Managing Director	Yes	No	0 – 50	Less than £1 million	280,000
Baggeridge Brick PLC	Mr Philip Noble	Technical Services Manager	Yes	No	251 – 500	£10 million plus	300 million
Ibstock Brick	Mr Philip Beardsworth	Group Export Manager	No	CRH PLC	1500+	£10 million plus	930 million
	Mr Barrie Clamp	Technical Services Manager					
The York Handmade Brick Co. Ltd.	Mr David Armitage	Chief Executive	Yes	No	0 – 50	£1 - £5 million	5 million
Chelwood Brick Limited	Mr John Sandford	Technical Director	No	CINVEN Venture Capital Group	251 – 500	£10 million plus	220 million
	Mr Andrew Cainen	Design Architect					
Charnwood Forest Brick Ltd	Mr Paul Freeman	Assistant Works Manager	No	Michelmersh Brick Holdings Company	0 – 50	£1 - £5 million	3.5 million

Table 27: Information on the Organisations involved in the Case Study Interviews

Organisation	Interviewee	Position	Funding	Members	Membership of the Companies Interviewed		No. of Brick Manufacturers
Construction Products Association	Mr John Tebbit	Industry Affairs Director	Members & small amount of contract work	Companies Trade Associations	BDA BCC CRH (Ibstock)		N/A
British Ceramic Confederation	Mr David Beardsworth	Technical Director	Members & small amount of contract work	Companies All Clay	Ibstock Baggeridge Brick York Handmade	Bulmer Brick Chelwood Brick Charnwood Brick	24
Brick Development Association	Mr Richard Smith Mr Michael Driver	Principal of Technical Services Senior Architect	Members & small amount of contract work	Companies Brick	Ibstock Baggeridge Brick York Handmade	Bulmer Brick Chelwood Brick	24

Details of the Manufacturers and the Trade Associations Interviewed**Mr Peter Minter**

Managing Director
Bulmer Brick & Tile Co. Ltd.
Bulmer
Near Sudbury
Suffolk
CO10 7EF

Mr Philip Noble

Technical Services Manager
Baggeridge Brick plc
Fir Street
Sedgley
Dudley
West Midlands
DY3 4AA

Mr Barrie Clamp

Group Technical Services Manager
Ibstock Brick Ltd
Ibstock
Leicestershire
LE67 6HS

Mr Philip Beardsworth

Group Export Manager
Ibstock Brick Ltd
21 Dorset Square
London
NW1 6QE

Mr David Armitage

Chairman
The York Handmade Brick Co. Ltd.
Forest Lane
Alne
York
YO61 1TU

Mr John Sandford

Technical Director
Chelwood Brick Limited
Adswood Road
Cheadle Hume
Cheadle
Cheshire
SK8 5QY

Mr Paul Freeman

Assistant Works Manager
Charnwood Forest Brick Ltd.
Old Station Close
Shepshed
Nr. Loughborough
Leicestershire
LE12 9NJ

Mr John Tebbitt

Industry Affairs Director
CPA
26 Store Street
London
WC1E 7BT

Mr Richard Smith

Principal Technical Officer
BDA
Woodside House
Winkfield
Windsor
Berkshire
SL4 2DX

Mr David Beardsworth

Technical Director
BCC
Federation House
Station Road
Stoke-on-Trent
ST4 2SA

Analysis of the Case Study Interviews

BM = Brick Manufacturer TA = Trade Association

CPD

Have you had any involvement in any of the technical standards committees?

BM	Yes	No	Yes	No	TA
	2	5	2	1	
	29%	71%	67%	33%	

Do you think you should have more involvement/consultation?

BM	Yes	No	Yes	No	TA
	2	5	1	2	
	29%	71%	33%	67%	

All 3 trade associations have involvement with the Government and only the BDA think that the Government support could be improved by being a bit 'harder' in the decision making process.

Are you aware of the six Essential Requirements of the CPD?

Yes	No
4	3
57%	43%

The BCC were not aware of the 6 ER.

What would you say is/are the most important ERs for the new EN for bricks?

Company	Essential Requirement
York	Energy and Economy
Chelwood	Safety in Use Health and Hygiene
Baggeridge	Mechanical resistance and Stability
Charnwood	Mechanical resistance and Stability Energy and Economy
Bulmer	Energy and Economy
Ibstock – Marketing	All except Noise and Safety in Use
Ibstock - Technical	Mechanical resistance and Stability Safety in Fire

The trade associations identified the environment and the energy as the most important

Is the CPD having the most impact compared to other EU legislation?

Yes	No
0	10
0%	100%

Do you see the UK market changing for the better or worse in the next 10 years with the advent of the new EN for bricks?

Comments	
No change	Beneficial but small
Remain the same	
Remain the same	
No impact	
Decline in the long run	
Yes changes, but for the worst	

The Trade Associations comments were the same as the manufacturers, the market will remain the same and there will be no difference, except for the BCC. The BCC see the CPD as having caused industry to change. It has been the impetus for change by improving products but with increased bureaucracy.

Is the market change the same for other EU countries?

Yes	No
6	1
86%	14%

All three Trade Associations see there being a change in EU countries as they have different legislation, like planning and closer and more countries to trade with.

Do you see the CPD making a difference to the?

	Yes	No
Product	3	7
	30%	70%
UK brick industry	4	6
	40%	60%

Those that replied yes, see an improvement in quality of the product and the industry.

Do you think there is a need for harmonised European standards?

Yes	No
3	7
30%	70%

Those that replied yes, see harmonised standards improving trade and the possibility of exports. All three Trade Associations did not see the need for harmonised standards.

Market Environment

Market Sector	Bulmer	Baggeridge	York	Ibstock Tech.	Ibstock Mark.	Charnwood	Chelwood
Conservation	1	4	1	4	2	1	4
Repair/Maintenance	1	2	1	3	3	1	3
Small Works/Extensions/Single Homes	5	2	1	3	4	2-3	3
Small/Medium Projects	2	2	2	2-3	4	3	1
Large Scale Projects	3	1	4	1	1	1	1

It can be seen that the small manufacturers main markets are in conservation and repair and maintenance and the larger manufacturers are involved in large scale projects such as housing developments. Charnwood is the only small manufacturer that ranks large projects as top and this is because they have been involved in large one-off projects rather than housing developments.

The trade associations identified the large scale projects and the conservation markets as the two main sectors, representing both the small and large manufacturers markets.

New Initiatives to Improve Distribution

Have you considered any of the following?

	Yes	No
Partnering:		
Builders Merchants/Contractors	3	3
Designers/Clients	4	2
Integration of Supply Chain	2	4
E-Commerce	3	3

Only one reply has been recorded for Ibstock.

All 3 trade associations were aware of the initiatives and they also identified the BDA Registration Scheme.

Does local planning requirements influence your market?

Yes	No
7	0
100%	0

All 3 trade associations believe that local planning influences the brick market 'a great deal'. Only the BCC think that it is the same for other EU countries.

Market Entry Strategy

Do you at present use any of the following?

Entry Options	Bulmer	Baggeridge	York	Ibstock Tech.	Ibstock Mark.	Charnwood	Chelwood	sum	mean	R
Exports	1	1	1	1	1	1	1	7	1.00	1
Franchising	2	2	2	2	2	2	2	14	2.00	5=
Licensing	2	1	2	2	1	2	2	12	1.71	3
Open a Branch	2	2	2	2	2	2	2	14	2.00	5=
Office/Subsidiary										
Joint Venture	2	1	2	2	2	2	2	13	1.86	4
M & A	2	1	2	1	1	2	1	10	1.43	2=

It is clear that exports are the main entry option for entering new markets followed by M & A, which is used by the larger manufacturers.

Would you consider any of the entry options in the future?

Yes	No
5	2
71%	29%

Chelwood Brick and Charnwood Forest Brick were the only manufacturers that said they would not consider any new strategies in the future.

The trade associations believe that there will be an increase in licensing and joint ventures in the future.

Market Changes

Has there been a change to your market due to the SEM measures?

BM	Yes	No	Yes	No	TA
	1	6	1	2	
	14%	86%	33%	67%	

The **only yes** reply was from the Ibstock Group Export Manager and is possibly a reason why the question has been answered positively as he has more involvement with European markets than the other respondents. The CPA identified the increase in environmental legislation as a SEM factor.

Do you class the CPD as one of the SEM measures?

Yes	No
9	1
90%	10%

The **only no** reply was from the Ibstock Group Export Manager

Do you see your market changing over the next 10 years and if so in any of these areas?

Yes	No
10	0
100%	0

The following were also identified as affecting the market:

- Architectural fashion trends
- Competition in local markets due to consolidation among customers – merchants
- Shortage of trade skills

	Bulmer	Baggeridge	York	Ibstock Tech.	Ibstock Mark.	Charnwood	Chelwood	sum	mean	R
More Competition in Local Markets	2	1	1	1	1	1	1	8	1.14	2
Due to larger scale production	2	1	1	2	2	1	2	11	1.57	5
Cheaper EU products	2	1	1	2	1	1	2	10	1.43	3=
Technology Advances	1	1	1	1	1	1	1	7	1.00	1
Natural Resource Restrictions	1	1	2	2	1	1	2	10	1.43	3=

All manufacturers see Technology advances as affecting their markets in the future. Only Bulmer Brick do not see an increase in competition in their local market due to the specialist nature of their product and services.

The top 3 ranked competition for the future:

Competition	Bulmer	Baggeridge	York	Ibstock Tech.	Ibstock Mark.	Charn- wood	Chel- wood	sum	mean	R
Local Brick Manufacturers								0		5=
UK National Manufacturers	1	1		2	2	1	1	8	1.14	1
European Manufacturers										
Exporting		2	2		3	3	3	13	1.86	3
Acquiring UK firms								0		5=
New Technologies		3		1	1	2	2	9	1.29	2

York Handmade identified existing traditional materials, such as reclaimed bricks as their major future competitor, Bulmer Brick ranked bureaucracy as second and Ibstock's Group Technical Manager ranked environmental concerns as their third competitor.

Competition	Rank	
	Present	Future
UK National Manufacturers	1	1
European Manufacturers Acquiring UK firms	2	5=
European Manufacturers Exporting	3	3
New Technologies	4	2

The trade associations rank existing materials and new technology as the most important competitor for the future. Government construction policy is also identified as important by the BCC.

Importance of Barriers to Entry (Issues taken from Karakaya & Stahl, 1989)

Replies ranking importance as 1=Not at all, 2=A little, 3=Quite a lot and 4=A great deal. The top 10 ranked barriers are indicated by shaded areas and as Position 1=**Bold**, Positions 2-5=Normal and Positions 6-10=*Italics*.

Interviewee	Bulmer	Baggeridge	Ibstock Export	Ibstock Tech.	York	Chelwood	Charnwood	CPA	BDA	BCC	Total	Av. Score	Rank
Cost advantages of incumbents	2	1	3	4	1	3	3	3	3	3	26	2.60	11
Capital requirements	3	1	3	4	3	4	3	4	3	4	32	3.20	2=
Access to distribution channels	2	1	4	4	1	2	2	3	2	2	23	2.30	14=
Advertising	2	1	3	2	1	1	2	2	1	2	17	1.70	18=
Research and Development	3	1	4	3	1	3	2	2	3	1	23	2.30	14=
Divisionalisation	3	1	1	4	1	1	1	2	1	2	17	1.70	18=
<i>Technology and technological change</i>	3	3	3	3	3	3	2	3	1	3	27	2.70	10
Selling expenses	2	1	3	3	1	1	4	2	1	2	20	2.00	16
<i>Price</i>	3	4	2	4	1	2	3	3	3	4	29	2.90	6=
Market concentration	4	4	4	4	1	3	3	3	3	3	32	3.20	2=
Brand name or trademark	4	1	4	4	1	2	2	2	2	3	25	2.50	12
<i>Incumbents expected reaction to market entry</i>	3	1	3	4	2	4	3	3	3	3	29	2.90	6=
Seller concentration	3	1	4	3	1	2	3	3	2	2	24	2.40	13
Government Policy	4	4	3	3	3	4	3	3	2	2	31	3.10	5
Customer switching costs	2	4	1	3	2	1	1	1	2	2	19	1.90	17
Product differentiation of incumbents	4	1	4	4	1	3	3	2	3	3	28	2.80	9
<i>Number of competitors</i>	2	4	3	3	1	3	4	2	3	4	29	2.90	6=
Possession of strategic raw materials	4	4	3	4	3	4	4	4	4	4	38	3.80	1
Sunk costs	4	3	2	3	3	3	4	4	3	3	32	3.20	2=
Average	3	2.16	3	3.47	1.63	2.58	2.74	2.68	2.37	2.74			

The highest and lowest average scores are highlighted showing the difference in views between the large multinational and the small independent to entry barriers into the UK brick industry.

Manufacturers Ranked Importance of Issues from the DETR Industry Report

Replies ranking importance as 1=Not at all, 2=A little, 3=Quite a lot and 4=A great deal. The top 10 ranked barriers are indicated by shaded areas and as Position 1=**Bold**, Positions 2-5=Normal and Positions 6-10=*Italics*.

Current Issues

Issues	Interviewee	Bulmer	Baggeridge	Ibstock Export	Ibstock Tech.	York	Chelwood	Charnwood	Total	Av. Score	Rank
<i>Supply chain logistics</i>		1	4	4	4	3	3	3	22	3.14	9=
<i>Competition</i>		2	4	3	4	2	4	3	22	3.14	9=
Regulation		4	3	4	4	3	4	4	26	3.71	2
Taxation		4	2	4	4	2	3	4	23	3.29	6=
Management Style/Respect for people		4	3	4	3	3	3	3	23	3.29	6=
Training		4	3	3	4	3	3	3	23	3.29	6=
Role of Government		4	2	3	4	3	4	4	24	3.43	4=
Innovation		3	4	4	4	3	3	3	24	3.43	4=
European Union		4	2	3	2	2	4	3	20	2.86	14
IT/e-commerce		2	3	4	3	4	3	2	21	3.00	11=
Globalisation		1	1	1	2	1	2	2	10	1.43	22
Consolidation		1	4	3	4	3	3	3	21	3.00	11=
Distribution		1	4	4	3	3	3	3	21	3.00	11=
Foreign ownership/ FDI		1	3	3	3	2	2	2	16	2.29	17=
Environmental issue/sustainability		3	4	4	4	4	4	2	25	3.57	3
Research		3	2	4	3	3	2	2	19	2.71	15
Exchange rates/the Euro		1	3	4	1	1	2	2	14	2.00	20=
Off site Assembly		2	2	2	3	4	2	2	17	2.43	16
Partnering		1	3	3	3	1	2	2	15	2.14	19
Diversification		2	3	2	2	3	2	2	16	2.29	17=
Efficiency/ Productivity		4	4	4	4	4	4	3	27	3.86	1
Outsourcing		1	2	3	3	2	1	2	14	2.00	20=
Average		2.41	2.95	3.48	3.23	2.68	2.86	2.68			

Future Issues

THE TABLES AND RESOURCES COMPANIES HAVE CITED ARE FROM FORTER, 1999

Interviewee	Bulmer	Baggeridge	Ibstock Export	Ibstock Tech.	York	Chelwood	Charnwood	Total	Av. Score	Rank
Supply chain logistics	1	4	4	4	3	3	3	22	3.14	12=
<i>Competition</i>	2	4	4	4	2	4	4	24	3.43	8=
Regulation	4	3	4	4	4	4	4	27	3.86	2=
Taxation	4	3	4	4	2	4	4	25	3.57	5=
Management Style/Respect for people	4	4	4	3	3	4	4	26	3.71	4
<i>Training</i>	4	3	3	4	3	4	3	24	3.43	8=
<i>Role of Government</i>	4	2	3	4	3	4	4	24	3.43	8=
Innovation	3	4	4	4	3	4	3	25	3.57	5=
European Union	4	2	3	2	2	4	3	20	2.86	17=
IT/e-commerce	3	4	4	3	4	4	3	25	3.57	5=
Globalisation	3	2	1	2	2	2	2	14	2.00	22
Consolidation	2	4	3	4	3	3	3	22	3.14	12=
Distribution	1	4	4	4	3	3	3	22	3.14	12=
Foreign ownership/ FDI	1	4	3	3	2	3	2	18	2.57	19
Environmental issue/sustainability	4	4	4	4	4	4	3	27	3.86	2=
Research	3	4	4	4	3	2	2	22	3.14	12=
Exchange rates/the Euro	3	3	4	3	3	2	3	21	3.00	16
<i>Off site Assembly</i>	3	4	3	4	4	3	3	24	3.43	8=
Partnering	1	4	3	4	2	3	3	20	2.86	17=
Diversification	3	3	2	2	3	2	2	17	2.43	20
Efficiency/ Productivity	4	4	4	4	4	4	4	28	4.00	1
Outsourcing	1	3	3	3	2	1	3	16	2.29	21
Average	2.82	3.45	3.41	3.50	2.91	3.23	3.09			

The highest and lowest average scores are highlighted showing the difference in views between the large multinational and the small independent to entry barriers into the UK brick industry.

THE SKILLS AND RESOURCES COMPANIES HAVE (Taken from PORTER, 1980)

Areas that are different to the majority are indicated by shaded areas and Top Score in **Bold** and the Lowest Score in *Italics*.

	Bulmer	Baggeridge	Ibstock Export	Ibstock Tech.	York	Chel- wood	Charn- wood	BCC	BDA	Total
Sustained capital investment and access to capital	2	1	1	1	1	1	1	1	1	10
Process engineering skills	2	1	1	1	2	1	1	1	1	11
Intense supervision of labour	1	2	1	1	1	1	1	2	2	12
Products designed for ease in manufacture	2	1	1	1	2	1	1	1	1	11
Low cost distribution system	2	2	1	1	2	2	2	2	1	15
Strong marketing abilities	1	2	1	1	1	1	1	1	1	10
product engineering	1	1	1	1	2	1	1	1	2	11
<i>Creative flair</i>	1	1	1	1	1	1	1	1	1	9
Strong capability in basic research	1	2	1	2	1	2	2	2	2	15
Corporate reputation for quality or technological leadership	1	1	1	1	2	1	1	2	1	11
Long tradition in the industry or unique combination of skills drawn from other businesses	1	1	1	1	1	1	1	1	2	10
<i>Strong cooperation from channels</i>	1	1	1	1	1	1	1	1	1	9
	16	16	12	13	17	14	14	16	16	

1= yes 2= no

No reply from CPA

SPEARMANS RANK CORRELATION COEFFICIENT & THE T-TEST RESULTS

The following formulae were applied to the responses to the DETR Report into the UK materials sector and the results are shown:

Spearman's Rank Correlation Coefficient

$$\text{Rho} = 1 - \frac{6(\sum d^2)}{n(n^2-1)}$$

where, d = the difference in rankings
n = number of factors

T-Test

$$T = \frac{\gamma \sqrt{(n-2)}}{\sqrt{(1-\gamma^2)}}$$

where, γ = rho
n = number of factors

Rank Importance of Current Issues Affecting Strategies and Policies

Issues	IMPORTANCE								
	Current								
	Rank Score				Rank Score				
	DETR TA	Brick	d	d ²	DETR Comp	Brick	d	d ²	
Regulation	1	2	1	1	13	2	11	121	
Competition	2	9.5	7.5	56.25	2	9.5	7.5	56.25	
Environmental issues / sustainability	3	3	0	0	7	3	4	16	
Efficiency / productivity	4	1	3	9	1	1	0	0	
Role of Government	5	4.5	0.5	0.25	8	4.5	3.5	12.25	
Taxation	6	6.5	0.5	0.25	14	6.5	7.5	56.25	
Training	7	6.5	0.5	0.25	10	6.5	3.5	12.25	
Innovation	8	4.5	3.5	12.25	12	4.5	7.5	56.25	
European Union	9	14	5	25	18	14	4	16	
IT/e-commerce	10	11.5	1.5	2.25	15	11.5	3.5	12.25	
Supply chain logistics	11	9.5	1.5	2.25	6	9.5	3.5	12.25	
Consolidation	12	11.5	0.5	0.25	3	11.5	8.5	72.25	
Distribution	13	11.5	1.5	2.25	4	11.5	7.5	56.25	
Research	14	15	1	1	19	15	4	16	
Management style / Respect for People	15	6.5	8.5	72.25	5	6.5	1.5	2.25	
Exchange rates / the Euro	16	20.5	4.5	20.25	11	20.5	9.5	90.25	
Partnering	17	19	2	4	17	19	2	4	
Diversification	18	17.5	0.5	0.25	21	17.5	3.5	12.25	
Foreign ownership / foreign direct investment	19	17.5	1.5	2.25	16	17.5	1.5	2.25	
Off site assembly	20	16	4	16	22	16	6	36	
Outsourcing	21	20.5	0.5	0.25	20	20.5	0.5	0.25	
Globalisation	22	22	0	0	9	22	13	169	
				$\Sigma d^2=227.5$					$\Sigma d^2=831.5$

$$\text{Rho(TA)} = 0.872$$

$$\text{Rho(Comp)} = 0.530$$

Rank Importance of Future Issues Affecting Strategies and Policies

Issues	IMPORTANCE							
	Future							
	Rank Score				Rank Score			
	DETR TA	Brick	d	d ²	DETR Comp	Brick	d	d ²
Regulation	1.5	2.5	1	1	15	2.5	12.5	156.25
Competition	3	8.5	5.5	30.25	3	8.5	5.5	30.25
Environmental issues / sustainability	1.5	2.5	1	1	5	2.5	2.5	6.25
Efficiency / productivity	5.5	1	4.5	20.25	7	1	6	36
Role of Government	8.5	8.5	0	0	13	8.5	4.5	20.25
Taxation	8.5	5.5	3	9	19	5.5	13.5	182.25
Training	5.5	8.5	3	9	11	8.5	2.5	6.25
Innovation	10	5.5	4.5	20.25	12	5.5	6.5	42.25
European Union	8.5	17.5	9	81	17	17.5	0.5	0.25
IT/e-commerce	4	5.5	1.5	2.25	1	5.5	4.5	20.25
Supply chain logistics	11	12.5	1.5	2.25	4	12.5	8.5	72.25
Consolidation	12.5	12.5	0	0	2	12.5	10.5	110.25
Distribution	12.5	12.5	0	0	9	12.5	3.5	12.25
Research	12.5	12.5	0	0	21	12.5	8.5	72.25
Management style / Respect for People	15	4	11	121	8	4	4	16
Exchange rates / the Euro	16	16	0	0	14	16	2	4
Partnering	17	17.5	0.5	0.25	10	17.5	7.5	56.25
Diversification	18	20	2	4	22	20	2	4
Foreign ownership / foreign direct investment	19	19	0	0	16	19	3	9
Off site assembly	20	8.5	11.5	132.25	20	8.5	11.5	132.25
Outsourcing	21	21	0	0	18	21	3	9
Globalisation	22	22	0	0	6	22	16	256
				$\Sigma d^2=433.75$				$\Sigma d^2=1253.75$

$$\text{Rho(TA)} = 0.755$$

$$\text{Rho(Comp)} = 0.292$$

SWOT ANALYSIS

INDIVIDUAL MANUFACTURER

&

TRADE ASSOCIATION

SWOT Analysis of Baggeridge Brick PLC**STRENGTHS**

Range of products

Production capacity and quality of the capacity

WEAKNESSES

Marketing

Developing and training people

Lack of investment in world class technology / forward thinking

OPPORTUNITIES

Distribution – to niche, high end of the market - ‘tailor and trim’

Exports

Re-accessing the business/industry – investment. Look at the global market, the use of technology in mass production. Development – look at markets for the future

Know and understand customers better – market research

THREATS

Remaining the same – not making any changes/developing

EU competition – imports

Energy / Emissions legislation

Fuel price increases

SWOT Analysis of Bulmer Brick and Tile Limited**STRENGTHS**

Personal service, offer a 1 to 1 service.

Technology / experience / know how.

Recognise reputation and experience over years.

Product – unique / individual.

WEAKNESSES

Capital – lack of and problems generating.

Debt control and collection from bad payers.

Time – insufficient to deal with administration issues, can't afford the outlay for extra admin. staff to deal with all the extra admin. due to increased bureaucracy. Pressure on time.

OPPORTUNITIES

Greater diversification of product to conservation/refurbishment market.

More specialisation of product to markets.

Ability to change and adapt product to needs of conservation/refurbishment markets.

Opportunity to merchandise lime products alongside brick manufacture.

THREATS

Bureaucracy / legislation – negative assessment.

Government / EU.

Environmental issues – over exaggeration in legislation and implementation causing problems.

SWOT Analysis of Charnwood Forest Brick Limited**STRENGTHS**

Quality of product and range.

Flexibility of company – to adapt to customer needs, both in product and service.

Service offered – total.

WEAKNESSES

Distance from market – main market is in the south, over 80% of production travels over 50 miles to the customer. Not a strong local market as traditionally the smooth hard red brick is used in the area.

Size – cost of manufacture. High labour costs as the production is manual.

OPPORTUNITIES

Local markets – not fully exploited, possibility to develop a different product range.

Increased productivity – output more efficient. More mechanised production offering a different product to a niche, also due to shortage of good skilled hand moulders.

THREATS

Other manufacturers – increased competition on price and colour range.

Legislation – environmental and Health and Safety.

Imported products – due to the high end of the market, better cost margins.

SWOT Analysis of Chelwood Brick**STRENGTHS**

Efficient production.

Service offered – good customer perception.

Quality of product – good product development strategy.

Competitive product due to low cost production.

WEAKNESSES

Relatively small in size.

One product company – brick facings, therefore vulnerable to market conditions, i.e. consolidation.

OPPORTUNITIES

Innovative products - systems like 'supply and fix', agreements with bricklayer subcontractors, possible training programmes for bricklayers.

Growth.

THREATS

Take over by another company or group.

Over regulation.

Competitive cladding materials, new and existing.

Raw material and energy supply.

SWOT Analysis of Istock Brick (Group Technical Manager)**STRENGTHS**

Product range.

Geographical spread.

Design / Technical Advisory service.

Financial strength by ownership by CRH.

WEAKNESSES

Perceived as a high energy user.

Revolves around availability of craftsmen to apply product to a high standard.

Perceived as old fashioned by younger architects.

Too dependant on the housing market – 60%

High capital for plant and machinery. 3 times more than the set up for concrete producing facilities.

OPPORTUNITIES

Product development and innovation in conjunction with partnering agreements with major partners to develop new construction methods, a cladding panel system aimed at a niche market, thin bricks / brick slips, composite construction.

Further capitalise on strengths – product range and geographical spread.

THREATS

Price competition.

Consolidation in customer base – their bargaining power is greater and national deals become more important and can influence price.

Onerous environmental legislation.

SWOT Analysis of Istock Brick (Group Export Manager)**STRENGTHS**

Product range – large and constantly developing.

Scale – opportunities to be flexible to market changes – swapping production around factories to rationalise and standardise production (economies of scale). E.G. 2 plants produce 2 of the same brick types, change so 1 plant produces a single product and the other plant produces the other brick, can improve productivity by concentrating on a single product, is possible because Istock own several factories in certain areas – Positive market strategy to acquire in certain areas to scale production.

Depth of ability through organisation.

WEAKNESSES

Not to be master of own destiny, i.e. part of the CRH group which is the 4th largest materials group in the world. Loose your own destiny and route to get there – business rather than a brickmaker.

Resistance to change due to having been a long established firm – factories and some personnel.

OPPORTUNITIES

Rapid response – technical and after service care.

Use of technology – admin. systems; customers are more aware of products and deliveries; developing e-commerce due to the capital input from CRH.

THREATS

Competitors – increasingly from the EU.

Other materials – new technology; stone, i.e. China, due to low labour and production costs, exporting to new markets – affecting Asia and Australia markets, especially the paviour markets.

SWOT Analysis of York Handmade Brick Company Limited**STRENGTHS**

Flexibility, can make specials and purpose made.

Originality, offer a different product.

Appeals to planners in sensitive planning situations.

Personal service – as relatively small can offer a good service care to customers in their market, the smaller, single projects or homeowners.

Response time is good – can be 2 weeks for a purpose made (non standard) order and a standard, if not in stock, can be turned around in 2 weeks.

WEAKNESSES

Cost base is too high – volume is quite low and capital investment is high.

Labour intensive, as manual.

OPPORTUNITIES

New product development.

Increase market share by expansion into new areas and markets and exports.

Diversification to other clay products.

THREATS

Lack of skilled labour.

Changing customer preferences – fashion.

Legislation – environmental and Health and Safety – cost implications.

SWOT Analysis of the Brick Development Association

STRENGTHS

Impartial.

Represents 95% of the industry – UK and Ireland.

Strong technical background.

Engages in education on behalf of the industry – lectures to Universities, etc.

Well located in Windsor to reach industry.

WEAKNESSES

Under resourced to do the jobs expected to do.

Lack of concentration – need to sharpen up in certain areas and decide to concentrate on certain areas, trying to cover too much.

More determined in certain areas – the BDA is run by a Board of the Brick Industry (members) who sometimes see the BDA as an extension of their own business and want to promote their own issues rather than issues relevant to the entire brick industry.

OPPORTUNITIES

To maintain presence as an effective voice of the industry, especially in education.

Technical research and innovation (in conjunction with universities).

Generic promotion of the brick. When buying a brick you buy a specific brick by manufacturer rather than price or type, unlike for example wood, where you just buy the type of wood that you want and not by who manufactures it.

THREATS

Industry can continue to afford the luxury of the BDA.

Is there an overlap of all trade associations – too many associations for one industry all competing for the same members. Could be a move to merge associations.

SWOT Analysis of the British Ceramic Confederation

STRENGTHS

Increasingly being used by Government bodies to gauge industry views and opinions, therefore will always be a position for Trade Associations.

Members of staff in the BCC are respected by industry, they have a good reputation as quality staff.

WEAKNESSES

Non-producer and non-profit organisation so may not always be around, dependant on funding by members.

Stoke is seen as the potteries and there is some conflict with members who think that those members (tableware) get first priority over other members.

OPPORTUNITIES

Going out to manufacturers and seeing what they want, what their problems are and how to improve them through new initiatives, i.e. bench marking schemes.

Keeping abreast of new technology and representing industry views – aim to be indispensable to members so they continue to subscribe to the association.

THREATS

The market contracts in size, membership declines, funding reduces and therefore are unable to offer the same level of service to members.

SWOT Analysis of Construction Products Association**STRENGTHS**

Industry wide.

Funded by members – no subsidies.

Well respected in its area.

WEAKNESSES

Relatively small organisation.

Not sufficient long term funding for strategic issues – long term projects, 5 years, are not possible as the funding is not long term, as it depends on the number of members.

OPPORTUNITIES

Continue to raise profiles of construction materials and producers.

Supply chain integration.

Sustainability.

THREATS

Increase in 'anti-business' legislation from EU, bureaucracy.
Increases costs to industry (compliance and social) and they cut costs – trade association subscriptions.

**SWOT ANALYSIS
OF THE
UK BRICK INDUSTRY**

**BY THE
INDIVIDUAL MANUFACTURER
&
TRADE ASSOCIATION**

SWOT Analysis of the UK Brick Industry Baggeridge Brick PLC

STRENGTHS

Range of products.

Production capacity and quality of the capacity.

WEAKNESSES

Fragmented – the major corporations are only interested in profit, in the short term.

Lack of investment in world class technology / forward thinking and training.

Slowness to respond to changes in technology and in the market, i.e. housebuilders wanting fast-build technology which is less reliant on good weather and needs less skilled labour involvement on site.

OPPORTUNITIES

Exports.

Re-accessing the business/industry – investment. Look at the global market, the use of technology in mass production. Development – look at markets for the future.

Know and understand customers better – market research.

THREATS

EU competition – imports.

Energy / Emissions legislation.

Fuel price increases.

**SWOT Analysis of the UK Brick Industry
Bulmer Brick and Tile Limited**

STRENGTHS

Good product.

National industry.

Brick Development Association – brings together manufacturers, represents industry.

WEAKNESSES

Brick Development Association – not customer orientated. Support the use of Brick Factors too much.

Trying to produce cheapest product all the time rather than quality. Accountancy let – not brickmakers anymore.

Limited market – new build, housing and planning – competing against blocks, concrete and fascia materials.

OPPORTUNITIES

Limited.

THREATS

Bureaucracy / legislation – negative assessment.

Government / EU.

**SWOT Analysis of the UK Brick Industry
Charnwood Forest Brick Limited****STRENGTHS**

Efficiency.

Diversified product.

Quality – overall.

WEAKNESSES

Costs – energy / labour – not so much for the larger manufacturers / legislation.

Availability of raw materials – sands in the future and its link with environmental legislation.

OPPORTUNITIES

Export – some – although cost of transportation affects this.

THREATS

Alternative building products and systems.

Cheaper imports.

Legislation.

**SWOT Analysis of the UK Brick Industry
Chelwood Brick****STRENGTHS**

Traditional material.

Well liked.

Durable, aesthetically pleasing, maintenance free and sustainable.

WEAKNESSES

Wet trade – relies on skills of others in use.

Being traditional – perceived as old fashioned in some eyes.

Over capacity – costs are rising more so than prices.

OPPORTUNITIES

Product innovation – to retain the share of the market from prefabrication. Systems like ‘supply and fix’, agreements with bricklayer subcontractors, possible training programmes for bricklayers.

THREATS

Over regulation.

Competitive cladding materials, new and existing.

Raw material and energy supply.

**SWOT Analysis of the UK Brick Industry
Ibstock Brick (Group Technical Manager)****STRENGTHS**

Well liked product.

Regional presence – local manufacturing facilities for local markets.

Local vernacular - appearance / planning.

Indigenous raw material.

Long lasting and maintenance free – environmentally excellent life cycle analysis.

WEAKNESSES

Perceived as a high energy user.

Revolves around availability of craftsmen to apply product to a high standard.

Perceived as old fashioned by younger architects.

Too dependant on the housing market – 60%

High capital for plant and machinery. 3 times more than the set up for concrete producing facilities.

OPPORTUNITIES

Product development and innovation.

E-commerce.

Partnering in the supply chain.

Increased emphasis on sound insulation – Part E of the Building Regulations. There is a move back to dense, heavy construction for party walls due to problems with noisy neighbours.

THREATS

Architectural fashions.

Shortage of craftsmen.

Environmental considerations – increasing thermal insulation standards, energy costs on manufacture, carbon taxes, etc.

**SWOT Analysis of the UK Brick Industry
Ibstock Brick (Group Export Manager)****STRENGTHS**

Historical background – unlikely to change.

People like bricks.

Scale and range of bricks.

WEAKNESSES

Slow material to construct with.

Very vulnerable to weather conditions / seasonal on production on site.

Dependant on skilled operatives – if poorly laid the appearance is greatly reduced.

Reliant on other materials, mortar and standard of workmanship, can look terrible if wrong mortar is specified.

OPPORTUNITIES

Compete with sheet materials – fast build / cladding systems.

THREATS

Other materials.

Imports, bricks from the EU.

SWOT Analysis of the UK Brick Industry York Handmade Brick Company Limited

STRENGTHS

Geographic spread.

In general, modern production units.

Good trade organisations and good infrastructure.

Environmentally friendly and acceptable to planners, even more so than other materials in particular brick heritage areas, which is most of the UK, particularly England.

WEAKNESSES

Lack of product innovation.

Too little market development.

Too little research into product use.

Too little marketing as a whole – brick needs to be seen as a value added product rather than a commodity based solely on price.

OPPORTUNITIES

To develop on the above weaknesses, product and market research and innovation. The solutions are there they just need to be developed through research.

More development into clay products in general – is brick the market of the future? Developing outlets for clay units other than just the brick.

THREATS

Wet trades off site – use of prefabrication.

More vigorous marketing by competitors, steel and glass for example are very active as industries in promoting themselves.

Fashion, especially in non-housing designers, they like to use 'high-tech.' materials.

**SWOT Analysis of the UK Brick Industry
The Brick Development Association****STRENGTHS**

Sustainable.

Good product.

Competitive price.

Variety.

WEAKNESSES

Diversity of the product – 1258 bricks available over the counter.

Inflexible – nature of brick. You either make bricks or you don't, production not flexible to adapt to different product markets.

OPPORTUNITIES

To capitalise on the historic base.

Produce products for the future – new technology.

THREATS

New materials and technology.

Lack of skilled bricklayers and training on and off site.

**SWOT Analysis of the UK Brick Industry
British Ceramic Confederation**

STRENGTHS

Product perceived as reliable and consistent.

Awareness of manufacturers to market conditions and actively participate to try and influence policy.

WEAKNESSES

Cannot diversify – produce different products, the end product is construction and can not adapt to other industries.

Future not in manufacturers hands – reliant on government policy, especially housing and can not diversify easily into other areas.

OPPORTUNITIES

Environmental legislation, problems with waste management. Brick can benefit as it has a very good life cycle cost comparison and the end product can be crushed and used as an aggregate, therefore no waste.

THREATS

Prefabrication – cladding systems and brick slips.

Alternative building materials.

If market continues to decline, small manufacturers will go therefore reduction in capacity which could be filled with imports in 'boom' periods.

There needs to be a more continuous construction policy by the government, not up and down.

SWOT Analysis of the UK Brick Industry Construction Products Association

STRENGTHS

Concentrated between majors and local manufacturers.

Material of choice for external cladding for houses.

Land fill sites – after the clay quarries have been finished with, they are increasingly being used as land fill sites.

WEAKNESSES

Seen as a noisy / smelly industry.

Environmentally poor for resource use.

Seen as traditional.

OPPORTUNITIES

To develop products to fit today's requirements of; off-site production, reduced need for site skills – prefabrication.

THREATS

Remains the same – developers and contractors want fast build systems and these will come from other sources; different materials or from overseas.

Demographic changes – reduced availability of good trade skills.
More stringent Environmental legislation.

SWOT Analysis of Brick Companies (Companies View of Themselves)

All the replies are grouped together under a heading to produce one summary SWOT analysis so comparisons can be made about the industry

STRENGTHS

Product Range and Quality

- Range of products.
- Product – unique / individual.
- Product range – large and constantly developing.
- Product range.
- Quality of product and range.
- Quality of product – good product development strategy.
- Originality, offer a different product.

Product Characteristics - Traditional

- Appeals to planners in sensitive planning situations.

Production Capabilities

- Production capacity and quality of the capacity.
- Efficient production.
- Competitive product due to low cost production.
- Flexibility, can make specials and purpose made.
- Flexibility of company – to adapt to customer needs, both in product and service.
- Response time is good – can be 2 weeks for a purpose made (non standard) order and a standard, if not in stock, can be turned around in 2 weeks.

Customer Service Care

- Personal service, offer a 1 to 1 service.
- Service offered – total.
- Service offered – good customer perception.
- Design / Technical Advisory service
- Personal service – as relatively small can offer a good service care to customers in their market, the smaller, single projects or homeowners.

Reputation

- Recognise reputation and experience over years.
- Technology / experience / know how.

Organisation/Company Abilities

- Scale – opportunities to be flexible to market changes – swapping production around factories to rationalise and standardise production (economies of scale). E.G. 2 plants produce 2 of the same brick types, change so 1 plant produces a single product and the other plant produces the other brick, can improve productivity by concentrating on a single product, is possible because Ibstock own several factories in certain areas – Positive market strategy to acquire in certain areas to scale production.

Geographical spread.
Depth of ability through organisation.
Financial strength by ownership by CRH.
Family approach, good relations with all staff. Small but looking to grow.

WEAKNESSES

Human Resource Issues

Labour intensive, as manual.
Revolves around availability of craftsmen to apply product to a high standard.
Developing and training people.

Financial Constraints

Lack of investment in world class technology / forward thinking.
Capital – lack of and problems generating.
Debt control and collection from bad payers.
High capital for plant and machinery. 3 times more than the set up for concrete producing facilities.
Cost base is too high – volume is quite low and capital investment is high.

Industry and Product Perceptions

Perceived as old fashioned by younger architects.
Perceived as a high energy user.

Size Implications

Not to be master of own destiny, i.e. part of the CRH group which is the 4th largest materials group in the world. Loose your own destiny and route to get there – business rather than a brickmaker.
Resistance to change due to having been a long established firm – factories and some personnel.
Relatively small in size.
Size – cost of manufacture. High labour costs as the production is manual.
One product company – brick facings, therefore vulnerable to market conditions, i.e. consolidation.
Time – insufficient to deal with administration issues, can't afford the outlay for extra admin. staff to deal with all the extra admin. due to increased bureaucracy.
Pressure on time.

Market Restrictions

Distance from market – main market is in the south, over 80% of production travels over 50 miles to the customer. Not a strong local market as traditionally the smooth hard red brick is used in the area.
Too dependant on the housing market – 60%

Marketing.

OPPORTUNITIES

Product Development

Product development and innovation in conjunction with partnering agreements with major partners to develop new construction methods, a cladding panel system aimed at a niche market, thin bricks / brick slips, composite construction.

New product development.

Innovative products - systems like 'supply and fix', agreements with bricklayer subcontractors, possible training programmes for bricklayers.

Adapting Existing Products / Diversification

Diversification to other clay products.

Distribution – to niche, high end of the market - 'tailor and trim'.

More specialisation of product to markets.

Greater diversification of product to conservation/refurbishment market.

Ability to change and adapt product to needs of conservation/refurbishment markets.

New Markets

Exports.

Increase market share by expansion into new areas and markets and exports.

Local markets – not fully exploited, possibility to develop a different product range.

Opportunity to merchandise lime products alongside brick manufacture.

Improve Existing Business

Increased productivity – output more efficient. More mechanised production offering a different product to a niche, also due to shortage of good skilled hand moulders.

Use of technology – admin. systems; customers are more aware of products and deliveries; developing e-commerce due to the capital input from CRH.

Further capitalise on strengths – product range and geographical spread.

Growth.

Re-accessing the business/industry – investment. Look at the global market, the use of technology in mass production. Development – look at markets for the future.

Customer Care

Know and understand customers better – market research.

Rapid response – technical and after service care.

THREATS

Imports

EU competition – imports.

Competitors – increasingly from the EU.

Imported products – due to the high end of the market, better cost margins.

Legislation and Environmental Restrictions

Legislation – environmental and Health and Safety.

Energy / Emissions legislation.

Fuel price increases.

Environmental issues – over exaggeration in legislation and implementation causing problems.

Onerous environmental legislation.

Raw material and energy supply.

Legislation – environmental and Health and Safety – cost implications.

Bureaucracy / legislation – negative assessment.

Government / EU.

Over regulation.

Alternative Products and Systems

Other materials – new technology; stone, i.e. China, due to low labour and production costs, exporting to new markets – affecting Asia and Australia markets, especially the paver markets.

Competitive cladding materials, new and existing.

Market Conditions

Consolidation in customer base – their bargaining power is greater and national deals become more important and can influence price.

Price competition.

Other manufacturers – increased competition on price and colour range.

Take over by another company or group.

Industry / Product Restrictions

Lack of skilled labour.

Changing customer preferences – fashion.

Remaining the same – not making any changes/developing.

SWOT Analysis of Brick Associations (Associations View of Themselves)

All the replies are grouped together under a heading to produce one summary SWOT analysis so comparisons can be made about the industry

STRENGTHS

Industry Representation

Represents 95% of the industry – UK and Ireland.

Industry wide.

Funded by members – no subsidies.

Impartial.

Respected

Well respected in its area.

Members of staff in the BCC are respected by industry, they have a good reputation as quality staff.

Utilised by the Government

Increasingly being used by Government bodies to gauge industry views and opinions, therefore will always be a position for Trade Associations.

Educational and Technical Resources

Strong technical background.

Engages in education on behalf of the industry – lectures to Universities, etc.

Location

Well located in Windsor to reach industry.

WEAKNESSES

Resources

Under resourced to do the jobs expected to do.

Lack of concentration – need to sharpen up in certain areas and decide to concentrate on certain areas, trying to cover too much.

Relatively small organisation.

Member Rather than Industry Representation

More determined in certain areas – the BDA is run by a Board of the Brick Industry (members) who sometimes see the BDA as an extension of their own business and want to promote their own issues rather than issues relevant to the entire brick industry.

Funding

Not sufficient long term funding for strategic issues – long term projects, 5 years, are not possible as the funding is not long term, as it depends on the number of members.

Non-producer and non-profit organisation so may not always be around, dependant on funding by members.

Member Conflicts – Location of Head Office

Stoke is seen as the potteries and there is some conflict with members who think that those members (tableware) get first priority over other members.

OPPORTUNITIES

Technical developments

Technical research and innovation (in conjunction with universities).
Keeping abreast of new technology and representing industry views – aim to be indispensable to members so they continue to subscribe to the association.

Industry Representation – Government / EU

To maintain presence as an effective voice of the industry, especially in education.

Industry and Product Promotion

Generic promotion of the brick. When buying a brick you buy a specific brick by manufacturer rather than price or type, unlike for example wood, where you just buy the type of wood that you want and not by who manufactures it.
Continue to raise profiles of construction materials and producers.

New Initiatives

Supply chain integration.

Sustainability.

Going out to manufacturers and seeing what they want, what their problems are and how to improve them through new initiatives, i.e. bench marking schemes.

THREATS

Reduction in Membership

Industry can continue to afford the luxury of the BDA.

- **Increased legislation costs**

Increase in 'anti-business' legislation from EU, bureaucracy. Increases costs to industry (compliance and social) and they cut costs – trade association subscriptions.

- **Market concentration**

The market contracts in size, membership declines, funding reduces and therefore are unable to offer the same level of service to members.

Consolidation of Trade Associations

Is there an overlap of all trade associations – too many associations for one industry all competing for the same members. Could be a move to merge associations.

**SWOT Analysis of the Brick Industry in the UK
(Companies View)**

STRENGTHS:

Quality and Range of Product

Range of products.
Good product.
Scale and range of bricks.
Quality – overall.
Diversified product.

Production Capabilities

Production capacity and quality of the capacity.
Efficiency.
In general, modern production units.

Industry Presence

National industry.
Regional presence – local manufacturing facilities for local markets.
Geographic spread.

Trade Associations & Networks

Brick Development Association – brings together manufacturers, represents industry.
Good trade organisations and good infrastructure.

Brick Perception – Traditional

Historical background – unlikely to change.
Traditional material.
People like bricks.
Well liked product.

Environmental Attributes

Environmentally friendly and acceptable to planners, even more so than other materials in particular brick heritage areas, which is most of the UK, particularly England.
Local vernacular - appearance / planning.
Durable, aesthetically pleasing, maintenance free and sustainable.
Indigenous raw material.
Long lasting and maintenance free – environmentally excellent life cycle analysis.

WEAKNESSES

Finance not Industry Driven

Fragmented – the major corporations are only interested in profit, in the short term.
Accountancy led – not brickmakers anymore.
Over capacity – costs are rising more so than prices.
Trying to produce cheapest product all the time rather than quality.

Production Requirements

Costs – energy / labour – not so much for the larger manufacturers / legislation.
High capital for plant and machinery. 3 times more than the set up for concrete producing facilities.
Availability of raw materials – sands in the future and its link with environmental legislation.
Perceived as a high energy user.

Self Promotion

Brick Development Association – not customer orientated. Support the use of Brick Factors too much.
Too little marketing as a whole – brick needs to be seen as a value added product rather than a commodity based solely on price.

Market Restrictions

Limited market – new build, housing and planning – competing against blocks, concrete and fascia materials.
Too dependant on the housing market – 60%
Too little market development.

Product Restrictions – Weather & Trade Skills

Slow material to construct with.
Very vulnerable to weather conditions / seasonal on production on site.
Dependant on skilled operatives – if poorly laid the appearance is greatly reduced.
Wet trade – relies on skills of others in use.
Revolves around availability of craftsmen to apply product to a high standard.
Reliant on other materials, mortar and standard of workmanship, can look terrible if wrong mortar is specified.

Industry Adaptability

Slowness to respond to changes in technology and in the market, i.e. housebuilders wanting fast-build technology which is less reliant on good weather and needs less skilled labour involvement on site.
Lack of investment in world class technology / forward thinking and training.
Too little research into product use.

Design fashion & Trends

Perceived as old fashioned by younger architects.
Being traditional – perceived as old fashioned in some eyes.
Lack of product innovation.

OPPORTUNITIES

Exports

Export – some – although cost of transportation affects this.

Development – Products & Markets

Compete with sheet materials – fast build / cladding systems.

Product development and innovation.

To develop on product and market research and innovation. The solutions are there they just need to be developed through research.

More development into clay products in general – is brick the market of the future?

Developing outlets for clay units other than just the brick.

Product innovation – to retain the share of the market from prefabrication. Systems like ‘supply and fix’, agreements with bricklayer subcontractors, possible training programmes for bricklayers.

Re-accessing the business/industry – investment. Look at the global market, the use of technology in mass production. Development – look at markets for the future.

Know and understand customers better – market research.

New Industry Initiatives

E-commerce.

Partnering in the supply chain.

Revised Building Regulations

Increased emphasis on sound insulation – Part E of the Building Regulations. There is a move back to dense, heavy construction for party walls due to problems with noisy neighbours.

Limited.

Seen as limited opportunities by a small manufacturer in a niche market.

THREATS

Imports

EU competition – imports.

Imports, bricks from the EU.

Cheaper imports.

Legislation & Bureaucracy

Legislation.

Bureaucracy / legislation – negative assessment.

Government / EU.

Over regulation.

Environmental Implications on Production

Environmental considerations – increasing thermal insulation standards, energy costs on manufacture, carbon taxes, etc.

Raw material and energy supply.

Energy / Emissions legislation.

Fuel price increases.

Architectural Fashions

Fashion, especially in non-housing designers, they like to use 'high-tech.' materials.

Product Limitations

Shortage of craftsmen.

Wet trades off site – use of prefabrication.

Alternative Materials & Products

Competitive cladding materials, new and existing.

Alternative building products and systems.

More vigorous marketing by competitors, steel and glass for example are very active as industries in promoting themselves.

SWOT Analysis of the Brick Industry in the UK (Association Views)

STRENGTHS:

Concentrated between majors and local manufacturers.

Material of choice for external cladding for houses.
Product perceived as reliable and consistent.

Land fill sites – after the clay quarries have been finished with, they are increasingly being used as land fill sites.

Awareness of manufacturers to market conditions and actively participate to try and influence policy.

Good product – Sustainable, Variety and Competitive price.

WEAKNESSES

Seen as a noisy / smelly industry.
Environmentally poor for resource use.

Seen as traditional.
Cannot diversify – produce different products, the end product is construction and can not adapt to other industries.
Inflexible – nature of brick. You either make bricks or you don't, production not flexible to adapt to different product markets.

Diversity of the product – 1258 bricks available over the counter.

Future not in manufacturers hands – reliant on government policy, especially housing and can not diversify easily into other areas.

OPPORTUNITIES

To develop products to fit today's requirements of; off-site production, reduced need for site skills – prefabrication.
Produce products for the future – new technology.

Environmental legislation, problems with waste management. Brick can benefit as it has a very good life cycle cost comparison and the end product can be crushed and used as an aggregate, therefore no waste.

To capitalise on the historic base of brick.

THREATS

Remains the same – developers and contractors want fast build systems and these will come from other sources; different materials or from overseas.

Prefabrication – cladding systems and brick slips.

Alternative building materials.

New materials and technology.

Demographic changes – reduced availability of good trade skills.

Lack of skilled bricklayers and training on and off site.

More stringent Environmental legislation.

If market continues to decline, small manufacturers will go therefore reduction in capacity which could be filled with imports in ‘boom’ periods.

There needs to be a more continuous construction policy by the government, not up and down.