

UNIVERSITY OF STRATHCLYDE

Department of Marketing

PERCEPTION AND MANAGEMENT OF RISK

IN THE CONSTRUCTION INDUSTRY

Sylvester Orsaah

Submitted according to the Regulations
for the degree of Ph.D.

September 1984

DEDICATION

TO

MSULSHIMA

and

M. J. BAKER

	<u>TABLES</u>	<u>PAGE NO.</u>
1	Respondents' positions in their companies	310
2	The Survey Response Rate	311
3	Sizes of the Responding Companies	314
4	Values of the contracts on which answers to the questionnaire were based	316
5	Types of construction projects on which answers to the questionnaire were based	317
6	Composition of the sample (subsidiary)	319
7	Managerial positions of the responding customers	324
8	Survey response rate	325
9	Values of the contracts on which customers based their answers to the questionnaire	326
10A	Perception of risk by construction companies	336
10B	Relationship between Risk Perception and Company Size	339
10C	Relationship between Perceived Risk and the Value of Contract.	341
10D	Relationship between Risk Perception and each of the independent variables	342
10E	Relationship between Risk Perception and Contract Value	344
11A	Types of Risks Perceived by Construction Companies	348
11B	Clauses included in the Contracts as given by Construction Companies	349
11C	Clauses included in the contracts as given by Construction Customers	349
11D	Clause Application by Customers	350
11E	Types of Clauses Construction Customers Applied	350
12A	Risk Management Strategies applied by Companies	352

	<u>PAGE NO.</u>
12B Form of Contract	356
12C Reasons for Written Contracts	356
13A Contract Variations	357
13B Variations Initiators	358
13C Reasons for Variations as given by Responding Companies	358
13D Effect of Variations on Company Performance	359
13E Effect of Variations on Contracts	359
14A Contract Variations	360
14B Variation Initiators	360
14C Reasons for Variations in initial contracts	361
14D Effect of Contract Variations on completion date	361
14E Clauses included in the contracts as given by Construction Companies	363
14F Clauses included in the contracts as given by Construction Customers	364
15A Marketing effort to precipitate contract award	368
15B Factors which companies used to influence customer decision	368
15C Effort to convince customer	369
16A Persuasion of customers by construction companies	370
16B Marketing impact on customer's decision	370
17A Bid follow-up marketing effort to influence result	371
17B The nature of the marketing effort used	372
18A How construction companies learn about contracts	374
18B Construction companies' contract 'Selling Decision Centre'	374

	<u>PAGE NO.</u>
18C Construction Customers' Contract Buying Decision Centre	375
19A How contracts were obtained	380
19B How contracts were awarded	381
20A When companies became officially involved in contracts	382
20B When customers would prefer to involve contractors	382
20C Factors which determine when to involve contractors	383
21A Identification of bid assessors	384
21B How assessor(s) was/were identified	385
21C Accounting for the assessor(s) in the bids	385
22A Information Search	386
22B Reasons for own investigation	387
22C What the bids were based on	387
22D Relationship between companies' own investigation on contracts and their perception of risk on such contracts	388
22E Relationship between the success of a bid and the basing of that bid on both the tender documents and the result of the company's own investigation	390
23A Determination of Bid Price	392
23B Factors which influenced the winning of contracts: (as given by construction companies)	395
23C Factors which determined the awarding of contracts: (as given by construction customers)	396
23D Kendall's Correlation Coefficients for the winning of contracts, with each of the independent variables	398
23E Kendall's Correlation Coefficients for the awarding of contract, with each of the independent variables	399
24A Preparation for Subsequent Negotiation	404

	<u>PAGE NO.</u>
24B Factors which companies emphasised in preparing for negotiations	405
24C Negotiators' training or educational background	407
24D Effect of Negotiators' background on Negotiations	407
25A Results of a cross-tabulation of negotiation success by negotiators' same background	408
25B Kendall's Correlation Coefficient for Negotiation Success, with Company's Negotiation Skill	408
25C Kendall's Correlation Coefficient for Negotiation Success, with Company's negotiation skill	409
26A Companies' Perception of Contract Decision Phases in terms of risk	411
26B Reasons for Perceiving a stage as most risky	412
27A Contract Execution Success	414
27B Factors affecting the execution of contract	415

		<u>PAGE NO.</u>
	<u>FIGURES AND DIAGRAMS</u>	
1	Basic construction project development and delivery process	217
2	The bidding stage decision diagram	224
3	Risk Perception Curve of the Responding Companies	340
4	Risk Perception Curve of Construction Companies in respect of Contract Value	345

	<u>PAGE NO.</u>
<u>CONTENTS</u>	
Abstract	1
Acknowledgement	2
<u>CHAPTER ONE:</u>	3
General Introduction	4
Purpose of the Study	5
The General Hypotheses	6
Outline of the Research Enquiry	8
Logic of the Literature Review	11
Definition of Terms	15
References	16
<u>CHAPTER TWO:</u>	17
Introduction	18
Behaviour under Conditions of Risk	21
The Distinction	23
Risk Defined	27
Subjectivity of Perceived Risk	30
Factors Which may Influence Attitude Towards Risk	36
Individual Characteristics	37
Situational Factors	39
Risk Management Strategies	43
Risk Management Strategies of Business Executives	51
Risk Factors	51
Risk Management Mechanisms	56

	<u>PAGE NO.</u>
General Conclusion	62
References	64
<u>CHAPTER THREE:</u>	72
Introduction	73
The Themes	73
How the Chapter is Developed	74
The First Section	74
The Second Section	74
The Third Section	75
Section One	76
Marketing and its Concept	77
Summary and Conclusion	94
Section Two	95
Industrial Marketing	95
The Industrial Market	95
Buying is Rational	98
Economic Factor	100
Complexity of Buying Process	102
Scale of Purchasing	103
Small Number of Buyers	104
Concentrated Nature of the Market	105
Buyer-Seller Interdependence	106
Summary and Conclusion	107

Section Three	108
Marketing Approach	108
Corporate Marketing Strategy	109
Conclusion	115
References	116
<u>CHAPTER FOUR: The Construction Industry</u>	125
Introduction	126
The theme of the chapter	126
How the chapter is developed	126
Section One	126
Section Two	127
Section One: The Construction Industry ✓	130
Introduction	130
Definition	131
The Main participants in the Construction Industry ✓	135
The essential functions/roles of the groups	136
The client/user	136
Types of Clients	137
The Design Team	138
The Construction Team	139
The Manufacturers	140
The Merchants	141
Banking and Financing Institutions	141
Public Undertakings	142
Education, Research and Development Group	143
The Main features of the Construction Industry ✓	144
Definition	144
Dependent on land, and fixed to the land	145

Large and Heavy	147
Expensive	147
They last for a long time	148
Long time to produce	149
Unique	150
Design is divorced from production	152
 Conclusion	 155
 Section Two: Marketing Approach	 157
Introduction	157
Relevance of Marketing	160
Knowledge of the Construction Market	165
Market Selection	167
Customer requirements	169
Market Analysis:	172
Operating definition	172
Analysis of the customer	172
Analysis of competitors for contracts	173
Assessment of the Market Potential	174
Analysis of the competition for resources	176
Capital	177
Materials	178
Labour	180
Company Analysis	182
The Company Structure	184
Organisational Structure defined	186
The human resources of the Company	186
Management group defined	187
Material Resources	188
The company's past contracts records	189
 Conclusion	 190

	<u>PAGE. NO.</u>
Alterations and/or additions risk	226
Risks to the Seller	227
Performance risks	227
Retention Moneys	228
Alterations/additions risk	228
Situational Factors	229
Pre-qualification stage	230
Implications for Marketing effort	231
Risk Implications	233
Risk to the Customer	233
Risk to the Seller	233
Conclusion	234
Section Two: The Bidding Phase	236
Introduction	236
The Main Objective of the Section	236
The Bidding Phase	237
The Marketing implications of the Bidding Phase	238
The bid and its legal implications	239
The risk implications of a wrong bid price	240
The development of Bidding Models and their main objectives	243
Types of Profit	245
Conclusion	259
Summary and Conclusion of the Chapter	260
References	261
<u>CHAPTER SIX:</u> The Commitment Phase	267
Introduction	268

	<u>PAGE NO.</u>
The Objective of the Chapter	268
Marketing implications of the commitment phase	269
Shift in emphasis	272
The Contracting Sub-stage	272
The J.C.T. Standard Form of Building Contract	273
The N.F.B.T.E.	274
The I.C.E.	274
The Production Sub-phase	275
The Human Side	277
The Sub-contractors /	282
The owner and/or his representative	284
The Materials and Equipment Side	284
Materials Management Concept defined	285
Conclusion	287
References	288
 <u>CHAPTER SEVEN:</u> Research Methodology	 290
Introduction	291
Section One:	293
The Major Methodological issue involved	293
The Research Design	295
The Basic conceptualisation	295
Choice of Research Technique /	296
Choice of Industry to Study /	300
Sample Design /	301
Section Two:	303
The Main Sample - (Construction Companies) /	303
Questionnaire Design	305
Piloting the Questionnaire	307

	<u>PAGE NO.</u>
Choice of Respondents	309
Sizes of the Responding Companies	311
Justification for Using the Criterion	312
Sectors in which the Sample Companies operate	314
Values of Contracts on which answers to the questionnaire were based	315
Types of projects on which answers to the questionnaire were based	317
Section Three:	318
Construction customers - (subsidiary sample)	318
Research Design	318
Questionnaire Design	319
Piloting the Questionnaire	321
Choice of Respondents	322
Value of the Contracts on which answers were based	325
Conclusion of the Chapter	327
References	328
<u>CHAPTER EIGHT: Analysis of the Sample Survey</u>	329
Introduction	330
The Hypotheses	330
Statistical tools used for analysis	333
Perception of risk by construction companies	336
Types of Risks Perceived	347
Risk Management Strategies employed	351
Conclusion	365

	<u>PAGE NO.</u>
Section Two:	367
Introduction	367
Effects of marketing approach by construction companies	367
Concluding Remark	372
How construction companies regarded their Marketing Departments	373
Concluding Remark	377
 Section Three:	 378
Introduction	378
The Bidding Phase	380
The Hidden Factors	397
Statistical Significance of the Relationships	397
Negotiation Sub-phase	403
Concluding Remark	410
Contract execution phase	411
Concluding Remarks	418
 References	 419
 <u>CHAPTER NINE:</u> Summary and Implications of the Findings	 420
Introduction	421
How the Chapter is organised	422
 Section One:	 423
Summary of the Findings	423
Perception and management of risks	423
Types of Risk	425
How the risks were managed	425
Use of traditional marketing methods and the role of the Marketing Department	427

	<u>PAGE NO.</u>
The tendering phase and the bidding strategies	428
Negotiation Strategies	430
Contract Execution Phase	431
Section Two:	432
Implications of the findings	432
Conclusion	437
Critique	437
Limitations of the study and recommendations for further research	439
References	441
Appendices	442
Bibliography	471

ABSTRACT

The study is concerned with perception and management of risk by decision makers in the competitive bidding sector of the British Construction industry.

The purpose of the study was to demonstrate that, contrary to the implicit assumption of earlier research on this subject, perception and management of risk in decision making is not an exclusive preserve of buyers alone, but that sellers also perceive and manage risks in their selling decision making process.

The study was concerned mainly with seller organisations. However, customers were also included so that comparisons between the views of sellers and the buyers could be made on a limited number of issues in order to reinforce particular points of view.

In spite of the exploratory nature of the study, three hypotheses, based on the literature review, were examined. After a careful consideration of relevant factors, 200 construction companies of different sizes, operating in the competitive bidding sector of the industry, and 150 customers representing nine different sectors, were selected at random for the main and the subsidiary samples respectively.

A questionnaire, with a covering letter, was mailed direct to the Managing Director or Chief Executive of each of the organisations included in the samples. From the main sample, 63.5% responded, out of which 47.0% of the replies were usable. In the case of the subsidiary sample, 67.3% responded, out of which 56.0% of the replies were usable.

Data analysis indicated that, (a) most construction companies - the sellers - perceived and managed risks in their contract selling decision making process; (b) in spite of the relevance of the marketing concept, most traditional marketing methods were not effective in the competitive bidding sector of the industry; and (c) a careful evaluation of the critical phases through which a contract decision process evolved was essential for effective management of risks inherent in construction contracts.

ACKNOWLEDGEMENTS

In the course of this study, I received help and encouragement from a number of people and organisations. My sincere thanks to them, especially the Institute of Marketing for giving me the permission to use some of its Reports on the Construction Industry. My thanks also go to Dr. S.T. Parkinson for his assistance in the early stage of the study.

I am particularly grateful to my supervisor, Professor M.J. Baker, for his help, patience, guidance, and encouragement throughout the study.

My thanks also go to Mrs. J. Grant and Mr. J. Bartholomew of Glasgow College of Building and Printing, for their assistance and permission to use the Laird Library.

I must also thank Mr. Alex. Gordon for his continued interest and encouragement, and Mr. K. Crosier for his assistance in the mailing of the questionnaires.

This study could not have been possible without financial assistance from my country. For that reason, I am grateful to Nigeria for the Scholarship which enabled me to complete the research.

Finally, my special thanks to all the Secretaries in the Marketing Department, especially Mrs. Ann Clark, who has kindly and patiently typed most of the manuscript, Mrs. June Pepper, Mrs. Diana Lewin and Mrs. Kathleen Kirkwood, who have also typed some parts of the thesis.

To all of you, I say 'Thank you'.

CHAPTER ONE

Chapter One

General Introduction

Most business organisations are becoming increasingly aware of the fact that their survival depends very much on their efficiency in decision making. According to Adler⁽¹⁾, Lorange and Norman⁽²⁾, this is because "all business decisions involve risk", and "every managerial situation comes down to a decision about risk and reward".

However, risk is a subjective concept. As such, most business decision making processes involve some normative as well as positive comparative evaluation of alternatives available to the decision maker⁽³⁾.

The result is that the final choice decision is normally based, not only on the decision maker's perception of the advantages and disadvantages or risks, which are associated with each of the alternatives considered, but also on his attitude toward what he may perceive as risks.

This suggests that since the comparative evaluation of available alternatives enables the decision maker to identify the risks inherent in each of the alternatives considered, the choice of a particular decision, or alternative, implies that the decision maker has also taken into consideration the strategies which will be used to manage the risks inherent in the decision.

In this regard therefore, the importance of identification or perception and management of risk in decision making, in terms of the survival of the business organisation, cannot be over-emphasised.

In marketing, a considerable number of research studies have been undertaken on perception and management of risk by decision makers.

However, apart from the fact that, most of these studies deal with individual decision makers in consumer buying situations involving relatively small amounts of money, virtually all the studies are concerned with buyers as opposed to sellers.

This pre-occupation seems to be based on an implicit assumption that only buyers perceive and manage risk in their decision making process.

The assumption itself, especially as it applies to the industrial market, seems to be based on the traditional view of industrial marketing that tends to ignore the considerable interactions which normally take place between the buyer and the seller in the industrial market, as well as the subsequent effects of these interactions on the seller organisation⁽⁴⁾.

As Hakansson, et al⁽⁵⁾ have demonstrated, it is becoming increasingly obvious that, in terms of perception and management of risk, such interactions produce not only some adjustments, but also some form of counter-measures from each of the parties concerned, in order to safeguard their interests.

Purpose of the Study

The main purpose of this study is to challenge the assumption that only buyers perceive and manage risk in their decision making process, particularly in the context of the construction industry, and to demonstrate that perception and management of risk in decision making is not an exclusive preserve of buyers alone, but that it is a common phenomenon which affects sellers as well in their selling decision making process.

The construction industry is chosen for study with the primary objective of establishing how construction companies interpret their decision making process in terms of perception and management of risk in competitive bidding contracts.

The justification for choosing the construction industry is based on its importance to national economic development, especially of Nigeria on which the study was initially intended to be based.

Apart from the personal interest of the researcher, another influencing factor is the fact that, most of the construction industry is, in fact, part of the industrial market, producing and marketing capital products, with most of the buying/selling decision making being "organisational" rather than "personal".

In this regard, contract decision making is basically a buying/selling decision. As such, it evolves through decision phases and involves considerable amount of risks and interactions between the buyer and the seller organisations.

Therefore, it is most likely and, indeed, natural, that while the buyer may take measures to safeguard his own interest, the seller too will take appropriate measures to identify and manage what he may perceive as risks in the decision.

The General Hypotheses

In spite of the fact that this study is basically exploratory in nature, the thesis has examined three main hypotheses.

The first hypothesis, H_1 , suggests that seller organisations, represented by construction companies, perceive and manage risk in their selling decision making process.

Specifically, it is hypothesised that-

H₁. Construction compnaies perceive risk in their decision to tender for an accept construction contracts.

Accordingly, they take appropriate measures to manage the perceived risk.

The second hypothesis, H₂., is concerned with acceptance and application of marketing in the competitive bidding sector of the construction industry.

It suggests that, although the marketing concept is relevant in the construction industry, the nature of the industry makes it difficult for traditional marketing methods to be effective in the competitive bidding sector of the industry.

Specifically, it is hypothesised that-

H₂. A traditional marketing approach is not effective in the competitive bidding sector of the construction industry.

As such, the marketing department is not regarded in most construction companies as an important part of the "Selling Decision Centre".

The third hypothesis, H₃., suggests a more broadly based approach to risk management in construction contracts. It suggests that risks in construction contracts are spread along the decision phases through which a contract decision process evolves.

Specifically, this is stated in the hypothesis as-

H₃. That in contract decision making, an analysis of the relevant "focal points" is essential for effective management of risks in the contract.

Outline of the Research Enquiry

Each of the above hypotheses is examined in the context of the competitive bidding sector of the British construction industry.

The research itself is based on completed construction contracts. This suggests that the research data is concerned with how contract decisions had been made rather than how they will be made.

This raises, not only the question of whether the respondent will be able to recall accurately what actually happened when the decisions were being made, but also the fear that the respondent's answers may be influenced by his experience of the outcome of the decision.

Obviously, this raises another question of how far back the study should go, in view of the suspicion about the reliability of the respondent's recall on decisions taken some years ago.

In the end, a compromise solution has to be found in order to meet the dual requirements of "recency" of information supplied and the basing of that information on completed construction contracts. Each of the companies included in the sample was requested to base its answers to the questionnaire on any one construction contract it completed in 1982.

The customers, on the other hand, were requested to base their answers on any one contract they had awarded "recently".

The main reason for the inclusion of customers in the study is to make it possible for some limited comparisons to be made between the views of the seller organisations and those of the buyers on a limited number of issues especially where such comparisons are likely to reinforce or buttress particular points of view.

A number of sampling frames have been used to select both the companies (6), (7), (8) and the customers (9), (10) that make up the main and subsidiary samples respectively.

In spite of the fact that the precise number of companies and customers operating in the construction industry could not be determined, two hundred (200) construction companies of different sizes operating in the competitive bidding sector of the industry, and one hundred and fifty (150) customers, representing nine different sectors, have been selected for the main and subsidiary samples respectively.

These sample sizes are considered large enough to provide, not only reasonable response rates, but also responses that are truly representative of the samples.

The research enquiry itself was designed not only to evaluate the stated hypotheses, but also to solicit some exploratory

information which will be used to draw some conclusions on certain issues which may not be covered directly by the hypotheses.

A questionnaire, together with a covering letter, was mailed to the Managing Director, or Chief Executive of each of the companies and the customer organisations that were included in the samples.

The letter introduced briefly (in absentia) the researcher and the study. It requested each Managing Director or Chief Executive to complete the questionnaire or direct it to the appropriate person(s) in his organisation who could answer the questions, and then return the questionnaire, as soon as possible, in the stamped addressed envelope provided for the purpose.

It also assured the respondent that neither he nor his organisation would be identified, and that any information supplied would be treated with strict confidence and used only for the research purpose.

One hundred and twenty seven (127) companies (i.e. 63.5%) responded, out of which ninety four (94) replies (i.e. 47.0%) were usable.

In the case of the subsidiary sample, one hundred and one (101) customer organisations (i.e. 67.3%) responded, out of which eighty four (84) replies (i.e. 56.0%) were usable.

In view of the fact that the questionnaires were mailed, and the fact that they were relatively long, the above response rates were considered very good and sufficient to provide the required data for the purpose for which the surveys were undertaken.

The survey data was analysed through the use of a computer. The results show that the hypotheses are supported.

Logic of the Literature Review

The literature review which follows, consists of five Chapters, each focussing on different but related issues(s). The purpose of the review is to provide the bases on which the general hypotheses could be tested in the competitive bidding sector of the British construction industry.

Chapter Two examines perception and management of risk by decision makers. In particular, it deals with the review of previous studies on perceived risk.

Since research studies on attitude and behaviour toward risk, of buyers and sellers in the construction industry, and consequently, how they manage perceived risks, are extremely scanty, the review deals with some of the available literature on how individual customers and business executives manage perceived risks in their decision making process.

The relevance of the review of these studies lies in the fact that risk is a subjective and situational concept. Secondly, there is some evidence to suggest that some of the risk management strategies which individual decision makers use tend to be basically the same as those which organisations themselves use to manage perceived risk.

Therefore, a review of literature which deals with relatively simple risk situations is considered useful in explaining the concept of risk as it affects the decision maker in the competitive sector of the construction industry.

From the review, it is obvious that, although a lot of research studies have been undertaken on how buyers perceive and manage risks, little or no attention has been given to the behaviour of the sellers on the same issue.

In Chapter Three, the main emphasis is the importance of the marketing concept in the survival of business organisations in free market economies.

The chapter is split into three sections: Section One reviews the problems associated with the definition of marketing. It concludes that as a management function, marketing cannot be isolated from other management functions and be expected to achieve the desired results.

Section Two is concerned with the distinction between the consumer goods market, and the industrial market. It identifies the features of the industrial market, some of which provide some link between the industrial market and the construction industry.

The link is also shown in Section Three, which reviews industrial marketing in terms of inter-organisational interactions which develop into relationships between the buyer and the seller organisations.

However, in most cases, the life of the relationship is based on the seller's ability to satisfy the buyer's needs, which very often calls for a corporate marketing approach - a complete involvement of the whole organisation.

Chapter Four is concerned with the construction industry, with the primary objective of presenting, in simple terms, the nature of the industry in its three basic facets:

- what it does,
- the participants, and
- the nature of construction products.

The chapter itself is divided into two sections. The first section establishes the basis on which the construction industry is defined. It provides a general discussion on the industry's participants and shows their dependence on one another, as well as the industry's relationships to other industries. The section shows that the features of the products which the industry produces are a manifestation of the nature of the industry itself.

The second section takes up the problem of marketing in the construction industry. It suggests that, in spite of its complex nature, the construction industry can benefit from acceptance and application of marketing.

However, because of the nature of the industry, it is suggested that, for marketing to fulfil its risk management function, the firm must understand the market in which it is operating. This could be achieved through a careful analysis or appraisal of both the market and the company itself in terms of its strengths and weaknesses.

In Chapter Five, the primary objective is to show that a construction contract decision making process is basically a buying/selling decision.

The chapter is divided into two parts. The first part reviews some of the models of organisational buying behaviour. The second part shows that, a standard construction contract decision evolves

through phases similar to those of a new-buy situation in the industrial market.

However, each of the phases has some risks of varying degrees. Therefore it is essential that the construction company should analyse the phases - especially the critical ones - in order to identify the risks involved.

This will place the firm in a better position to devise suitable strategies to manage the perceived risk.

Chapter Six is concerned mainly with customers' post-purchase satisfaction. It maintains that, in most cases, the buyer of a construction contract does not get his post-purchase satisfaction immediately. Normally, his post-purchase satisfaction would depend on both the performance of the construction company - the seller- on the project, and the performance of the product when it is delivered.

In marketing terms, this provides an opportunity for the seller to satisfy the buyer through his performance on the contract, and the quality of the delivered product.

However, this depends, to a large extent, on the firm's ability to manage its resources and other factors involved in the execution of the contract. In other words, the ability of the seller organisation to satisfy the buyer depends very much on the seller's managerial capability to manage effectively and efficiently the factors which are involved in the execution of the contract.

Definition of Terms

The following definition of terms will be used in this thesis:-

Contract	A full, free and voluntary agreement between the buyer and the seller - the construction company - which fulfills all the conditions to create an obligation which is enforceable in a Court of Law.
Construction Product	A completed construction project.
Focal Points	Very important buying/selling decision phases on which the success or failure of a buying/selling decision making depends.
Traditional Marketing Methods	Advertising, Distribution, Packaging, Personal Selling, Promotions, Branding, Positioning.

REFERENCES

1. Adler, S "Risk-Making Management" Business Horizons, April, 1980, Page 11.
2. Lorange, P and Norman, D B "How attitudes towards risk influence Investment Decisions", European Business, Spring, 1972.
3. Libby, R and Fishburn, C P "Behavioural Models of Risk Taking in Business Decisions: A Survey and Evaluation", Journal of Accounting Research, Vol. 15, 1977.
4. Parkinson, S T "User-Supplier Interaction in New-Product Development" Unpublished Ph.D. Thesis 1980, Department of Marketing, University of Strathclyde, Glasgow.
5. Hakansson, H (ed.) International Marketing and Purchasing of Industrial Goods An Interaction Approach, John Wiley & Sons, 1982.
6. Kompass Vol. 1, U.K. 1983. In association with CBI., pp. 2587-2613.
7. Key British Enterprises, Vol. 1 and 2, 1983. Sun and Bradstreet Ltd., Directories Division, London.
8. The Construction News. 29th July 1982, 28th July 1983.
9. As 6 above.
10. Smith, G (ed.) Public Authority Directory. Brown, Knight and Truscott (Holdings) Ltd., Publications Division, London.

Chapter Two

CHAPTER TWO

Introduction

The aim of this chapter is to review some of the available literature on perceived risk. However, the review does not include literature on the construction industry because past research on attitude (and behaviour toward risk) of buyers and sellers in the construction industry, and consequently, how they manage perceived risk, are extremely scanty.

There is no doubt that some studies^{(1) (2)} have been undertaken in the area of competitive bidding. However, these studies are not reviewed here because the overall review of literature in this study is intended to be spread over a number of chapters, each of which has a different theme.

Consequently, the review in this chapter deals with some of the available literature, on how individual customers, and business executives deal with their perceived risk.

These studies are considered to be of some relevance because of the following reasons:-

In the first place, risk means different things to different people in different situations. A review of the literature which deals with relatively simple risk situations is therefore considered useful in explaining the concept of risk as it affects the decision maker.

Secondly, there is some evidence to suggest that, since organisations themselves are made up of people, in essence, some of the risk-management mechanisms which the individual decision maker

uses are basically similar to those which organisations use to reduce their perceived risk.

It is, therefore, hoped that an understanding of how individual consumers or decision makers perceive and handle risk would go a long way in improving our understanding of how decision makers in organisations perceive and handle their risk.

However, in doing this, I have decided to follow a sequence which, it is hoped, will make for a better understanding of the issues involved.

Consequently, the problems which are normally associated with definitions of risk are first to be reviewed. Then, the subjective nature of risk is demonstrated from earlier research.

At this juncture, it should have become clear that the problem of the decision maker is primarily that of making the right decision under conditions of risk and uncertainty. To deal with the hazards of decision making therefore, the decision maker tends to develop strategies to handle his perceived risk.

One interesting finding that has emerged from this review is the evidence from earlier research which suggests that buyers have developed risk-reducing strategies but that little attention has been given to the behaviour of sellers. The absence of such studies reinforces the potential benefits of the present research.

The lack of attention given to the behaviour of sellers toward perceived risk can be explained by a number of implicit assumptions which marketing authors seem to have made.

For example, one possible assumption is that only buyers see themselves threatened by perceived risk in a decision making process.

This study does not share this view or assumption. In the first place, buying decision, particularly in the industrial market and the construction industry market, involve a lot of interactions between the seller and the buyer organisations. It seems therefore unrealistic to assume that the seller is not affected by the risk management behaviour of the buyer, or the strategies which the buyer may employ.

What this study proposes therefore, is that the seller also is affected by the amount and type of risk he perceives in his decision making. Consequently he takes appropriate measures to manage his perceived risk.

Chapter Two

Literature Review

Behaviour under Conditions of Risk

The concept of risk eludes precise definition in spite of the fact that it has appeared in a number of studies. This situation has come about as a result of the fact that risk is both a statistical and an operational concept.

The statistical concept of risk is assumed to embody some objectivity and is generally a matter of academic interest.

By contrast, the operational concept of risk is a contextual phenomenon and its perception and definition tend to be subjective.

However, there is enough evidence to suggest that this is more realistic to business and consumer behaviour in that -

"the individual manager, his judgement and his personal preferences are, and will remain vital in reaching better business decisions."⁽³⁾

Opinions also differ about the precise definition of risk because various disciplines tend to have their own different approaches to the concept and study of risk. Thus, Pollatsek and Tversky⁽⁴⁾ observed that in economics and business literature the main concern is with normative rather than descriptive issues.

"There, risk is defined either in terms of the distribution of returns or in terms of the properties of the utility function."

Apart from these two factors, there is also a question of whether risk and uncertainty are synonymous.

In their 'A Theory of Risk', Pollatsek and Tversky⁽⁵⁾ acknowledged the problems of defining risk. However, they maintained that, in spite of the differences of opinions, three basic assumptions are shared. These assumptions are that:

- 1) risk is a property of options that affect choices among them;
- 2) options can be meaningfully ordered with respect to their riskiness; and
- 3) the risk of an option is related in some way to the dispersion or the variance of the outcomes.

They added that -

"Beyond these basic assumptions, however, no general agreement concerning the nature of risk has been reached."

Thus, Alba⁽⁶⁾ maintained that from the purely statistical angle, "a risk exists whenever it can be measured statistically". However, he was at pains to explain that he was not raising the question of objectivity or Bayesian Concepts, and all he meant was that -

"the statistical concept of risk implies that the risk is statistically measurable."

Jackson⁽⁷⁾ avoided the measurement issue, and simply maintained that "risk means both uncertainty and the result of

uncertainty". Cooley⁽⁸⁾ supported her by arguing that "risk is associated with uncertainty about future events, and more risk implies more uncertainty". Hertz added the same note when he said that "the exact course of future events is unknown when investment choices are made, and uncertainty creates risk".⁽⁹⁾

In terms of operational risk, both Bauer⁽¹⁰⁾ and Taylor⁽¹¹⁾ have suggested that risk is synonymous with uncertainty. Green⁽¹²⁾ also made no distinction between risk and uncertainty. According to him,

"Risk may be defined as the uncertainty surrounding the occurrence of an event which may cause a loss."

Thus, as far as Green is concerned, risk and uncertainty are synonymous.

Nicosia⁽¹³⁾, too, made no distinction between risk and uncertainty, since, according to him, "handling of risk means handling of uncertainty".

Whether Nicosia was simply being evasive, his view has been supported by Jensen⁽¹⁴⁾ who is not definite except that his discussion on page 171 under 'The Expected Utility Maxim' indicates that he has used 'risk' synonymously with uncertainty.

Weston and Brigham⁽¹⁵⁾ have acknowledged the distinction others made, but added that "we do not make this distinction; risk and uncertainty are used synonymously".

The Distinction

While the above authors have used risk and uncertainty synonymously, other authors have made a distinction between risk and uncertainty.

Van Horne⁽¹⁶⁾, for example, has argued that risk is distinct from uncertainty. According to him,

"The distinction between risk and uncertainty is that risk involves situations in which the probabilities of a particular event occurring are known; whereas, with uncertainty, these probabilities are not known."

This is consistent with the opinion held by Sharpe⁽¹⁷⁾ who argued that a situation of risk is said to exist if an individual is willing to base his actions on probability distributions. "Otherwise there is either certainty or uncertainty."

Knight⁽¹⁸⁾ did not only support this, but also brought in the issue of objectivity. He maintained that risk denotes the use of objective probability distributions, while uncertainty applies to the use of subjective probability distributions for decisions.

However, anyone who is familiar enough with practical business decisions would agree that most business decisions are made on the basis of subjective probability estimates.

Therefore, accepting some of these distinctions on their face value would imply that practical business decisions are devoid of 'risk', and that only uncertainty exists in business decisions.

Baker⁽¹⁹⁾ has also supported the distinction. However, unlike Knight, Baker has brought in the question of rationality and utility preference. He is of the view that,

"Under conditions of risk, one is faced with several possible states of nature, to each of which one can assign a probability of occurrence. Thus, there is no single pay-off but a number.., and the rational

decision maker will select the strategy with the largest expected utility."

The distinction then is that under conditions of uncertainty, the decision maker has "no purely objective means of resolving his problem".

This distinction has been given credence by McFarlane and Horowitz⁽²⁰⁾. They admit that in essence, the concepts of risk and uncertainty imply that we cannot state what the future holds in store. It is their belief, however, that risk and uncertainty can be distinguished and the distinguishing characteristics are primarily a matter of whether probabilities are assignable to future outcomes.

"If probabilities are assignable, the problem is appropriately classified under risk. If, on the other hand, rational assignment of probabilities cannot be made, the problem is classified under uncertainty."

This distinction is consistent with that of Baker⁽²¹⁾ and has a certain similarity with that of Duncan⁽²²⁾. Duncan reviewed some interesting work on this issue and came to the conclusion that

"In uncertain situations, there is less predictability with respect to the outcome of events than under conditions of risk."

The issue of objectivity in assigned probability distributions under conditions of risk is quite debateable, and requires considerable amount of research in order to enable a definitive statement to be made about it. Until such a time, it would seem that the use of "rational" and "utility preference", as Baker⁽²³⁾,

McFarlane and Horowitz⁽²⁴⁾ have done, appears to be more appropriate and less controversial.

The concept of objectivity implies a lack of subjective biases. In business decisions, this is rarely the case. Hill and Hiller⁽²⁵⁾, for example, have expressed the reality of business decision making when they stated that,

"In a business environment, decisions are usually made under conditions of uncertainty rather than risk because it is difficult to anticipate future market and environmental developments and to relate these to events in the past in an objective manner."

This is also consistent with the views of Hertz⁽²⁶⁾ who observed that the reason why in spite of the availability of computers and evaluation techniques, investment decisions still go wrong is that -

"As every executive knows, the estimates used in making (decisions) are just that - estimates."

Supporting Hertz, Carlson⁽²⁷⁾ simply denounced the objectivity argument and concluded that -

"In the end, these estimates are always based on value judgements."

In any case, a scrutiny of both McFarlane and Horowitz⁽²⁸⁾ and Duncan's⁽²⁹⁾ distinctions reveals that the obvious issue in this respect is no longer that the probabilities to the outcome of events cannot be assigned under conditions of uncertainty, but that where they are assigned, this is done with less confidence.

From the review so far, there is no doubt that opinions differ about whether risk can be distinguished from uncertainty or the two concepts are synonymous. Given that there is a distinction, then what really is risk?

Risk Defined

In this sub-section, an attempt will be made to offer a working definition of risk. But, first of all, it seems essential to make a distinction between a statistical concept of risk, and the operational concept of risk.

The statistical concept of risk embodies statistical measurability, and is defined in terms of rationally assigned probabilities to the outcome of events.

The operational concept of risk, on the other hand, is defined in terms of personal preferences, and is associated with the perception of the person(s) or company making a decision in a given context or situation.

Because operational risk is associated with the perception of the decision maker, it is normally referred to as 'perceived risk', and is associated with the concept of loss.

Thus, Bauer⁽³⁰⁾ maintains that consumer behaviour involves risk in that any action of the customer may produce mainly social and economic consequences which he cannot anticipate with certainty.

This view is also expressed in Webster's⁽³¹⁾ definition of perceived risk as

"A function of the buyer's level of uncertainty and the seriousness of the consequence associated with various decision outcomes."

He went on to state that there are two types of risk - (1) product performance risk associated with the extent to which the product meets the buyer's expectations with respect to actual performance; and (2) psychological risk which deals with the way other relevant persons react to the decision, as well as how the buyer himself feels about the outcome.

The greater the uncertainty and the more significant the consequences, the higher the degree of perceived risk.

As far as the individual consumer is concerned therefore, his perceived risk is primarily a matter of whether he will suffer a significant social or economic loss if he makes a wrong purchase decision in a given situation of uncertainty.

It is obvious that both Bauer and Webster have used operational risk and uncertainty synonymously, and they are not alone in doing this.

Hill and Hiller⁽³²⁾, for example, have stated that,

"In practice, both the terms uncertainty and risk are usually considered to be interchangeable."

Cox and Rich⁽³³⁾ also have supported them. They argue that basic to the concept of perceived risk is the notion of buying goals which arise as a result of a consumer's uncertainty about a purchase decision he is about to make, in terms of whether or not the product will satisfy his buying goals.

Put another way, the individual's perceived risk is synonymous with his perceived chances of loss or gain in a particular decision.

Peter and Ryan⁽³⁴⁾ disagree with this view. They argue that there is no logic in taking perceived risk as synonymous with uncertainty.

However, they support the loss concept of operational risk and define perceived risk as -

"The expectation of losses associated with purchases."

The association of perceived risk with expected losses has been supported by a number of studies. Pruitt⁽³⁵⁾, Slovic and Lichtenstein⁽³⁶⁾ all defined risk in terms of probabilities associated with the amount to be lost.

Joy and Barron⁽³⁷⁾ supported this definition too. They defined risk as the probability of loss or failure.

Slovic⁽³⁸⁾ also provided some supporting evidence. After a review of a number of works on risk, including his own researches, Slovic observed that it would seem that the subjects in these studies were making their decision on the basis of minimising possible losses or maximising possible gains.

He therefore concluded that -

"Risk is more likely to be related to probability and amount of loss."

In another review article, Edwards⁽³⁹⁾ concluded that risk was associated with the probability of loss. Other studies, both by

Slovic⁽⁴⁰⁾ and Payne⁽⁴¹⁾ came to the same conclusion, that perceived risk was highly associated with the probability of loss.

Collectively, therefore, these studies, including those of Swalm⁽⁴²⁾, Halter and Dean⁽⁴³⁾ and Grayson⁽⁴⁴⁾, support the conceptualisation of risk as the probability of loss, or failure to achieve a certain goal.

From this review we can therefore define perceived risk as

"What a person perceives he may lose in a given situation as a result of his action, or omission, or both.

Now that we have defined perceived risk, we can go on to consider its subjective nature.

Subjectivity of Perceived Risk

One interesting thing about operational risk is that, although it is associated with the chance of loss or gain, the perception of this chance tends to be highly subjective.

For example, in their review of literature on psychological risk-taking behaviour, Rapoport and Wallsten⁽⁴⁵⁾, concluded that the concept of risk appeared to be highly idiosyncratic. This conclusion has been supported by a number of studies.

One such study was that of Alderfer and Bierman⁽⁴⁶⁾. Since the researchers "had several objectives in designing our experiments", one can summarise them into one main objective - that of testing how the experiment participants behaved under conditions of risk.

The experiment itself was run at three different times, and consisted of two student groups (Groups 1 and 2), and one manager group (Group 3).

Groups 1 and 2 were given a questionnaire which had been designed by Kogan and Wallach⁽⁴⁷⁾ for an earlier experiment to investigate personality differences in risk-taking behaviour.

Then each participant was given forms which contained descriptions of three sets of investment alternatives and instructions.

At the end of the experiment the researchers found distinct differences in the decision rules both between student and manager subjects, and among the members of the manager group who participated in the experimental study.

Two important observations must be made about this study. There is little doubt that it showed some evidence of subjective nature of perceived risk. However, the study seems to suffer from two things:

In the first place, the behaviour of the subjects may have been "artificial" since they knew that they had nothing to lose.

Secondly, the participants, especially students, may have already taken some courses in Decision Theory, and this may also have influenced their choice behaviour. Besides, they were told of the experiment well in advance.

In spite of these observations, the finding suggests that, even when presented with the same risk-situation, the final reaction of the decision makers will still be subject to their

individual perception. Hence, the differences in their choice decisions.

Mao⁽⁴⁸⁾ had a similar result. He found in his study that managers used significantly different selection criteria in their choice decisions between risky projects. This suggests their subjective perception of the risk involved in the decision.

Newall⁽⁴⁹⁾, too, found some supporting evidence, though the study by Cardozo and Cagley⁽⁵⁰⁾ gave more credence to the subjective nature of perceived risk.

Swalm⁽⁵¹⁾ also agreed that perceived risk is a subjective concept. He maintained that, even within a given company, attitudes toward risk decisions may vary among the decision makers. According to him,

"the risk one man would recommend, another would shun as plague."

He supported his assertion with empirical findings. In a study of forty-eight senior business executives in the United States, he found that attitude towards risk tended to vary considerably among the participating managers.

Cooley⁽⁵²⁾ approached the issue from the investor's point of view. He maintained that,

"risk is a personal concept reflected by the viewpoint of a particular investor."

This would suggest a direct relationship between the level of perceived risk and the investor's willingness to invest, all things being equal.

The subjective nature of perceived risk has also been supported by Laurence⁽⁵³⁾ in his recent article in Management Today.

His work concentrates more on the direction of health risk. However, his belief in the subjective nature of perceived risk is evident, in the short case study about a Dutch company which he cites.

He commented:

"the perception of risk is highly subjective, clearly reflecting the values people hold."

McFarlane and Horowitz⁽⁵⁴⁾ have also subscribed to the same view. They maintain that risk will remain a subjective concept, even when it is endowed with numerical precision.

They contend that, risk will be related to the individual's judgement and perception. Consequently, different individuals may have different views on the degree of risk associated with a given decision.

This would suggest that, even when individuals agree on the relative risk involved in a particular decision, they may still prefer their own different courses of action, "as they may hold different attitudes towards risk".

Some more empirical evidence has been provided by other studies. In a study involving one hundred business executives, Swalm⁽⁵⁵⁾ found that some were risk seeking in one situation, and risk averse in another. Again this suggests the subjectivity of perceived risk.

A similar result was also found by Grayson⁽⁵⁶⁾ in his study of managers in the oil industry. This was confirmed by Halter and Dean⁽⁵⁷⁾. They carried out an empirical study of an orchard farmer, a grain farmer, and a college professor.

The findings showed that each of the subjects behaved differently to risk in different situations.

The study by Spence et al⁽⁵⁸⁾ certainly showed some evidence of subjective behaviour towards risk. In another study, Barnes and Reinmuth⁽⁵⁹⁾ imputed utility functions to two contractors for use in competitive bidding situations.

They found that one of them was risk-seeking for losses, while the other one was risk-seeking in the gains region. One possible interpretation of their behaviour is that their subjective perception of the risk made them to behave differently.

In their study of decision makers among Norwegian shipowners, Lorange and Norman⁽⁶⁰⁾ found substantial evidence of subjective behaviour toward risk.

Consequently, the researchers suggested that in making realistic investment decisions, it was wise to take "the decision maker's personal attitude towards risk into account".

Cox⁽⁶¹⁾, Cunningham⁽⁶²⁾ and Spence et al⁽⁶³⁾ also advocated the subjective concept of risk. Their very definition of perceived risk suggested this, though Cox became more explicit by adding that the amount of risk perceived was likely to "differ from one person to another according to his subjective interpretation of that risk".

Individual differences in attitude toward risk was also demonstrated by Cooley⁽⁶⁴⁾. In a study, he asked the fifty six participating investors to rank nine hypothetical probability distributions in order of risk. The result showed marked individual differences in attitude towards risk.

In one of the largest empirical studies yet conducted on executive behaviour under conditions of risk, Bassler et al⁽⁶⁵⁾ asked over four hundred top United States and Canadian business executives to develop preference ordering for nine hypothetical investment opportunities.

The findings showed marked individual differences in attitude towards risk.

The study by Green⁽⁶⁶⁾ which was "primarily concerned with attitudes towards risky investment options" also provided some supporting evidence.

In their article, Thomas and Moore⁽⁶⁷⁾ reviewed a number of related works and came to acknowledge that there was evidence indicating subjective behaviour towards risk. They added that the differences reflect "the different frames of reference which they have when processing the available information."

Similarly, Magee⁽⁶⁸⁾ acknowledged in his work that many people participating in a decision are likely to have different values at risk, and so they -

"Will see the uncertainty surrounding the decision in different ways."

This is consistent with the observation made by Crum et al⁽⁶⁹⁾, after a considerable review of literature on behaviour

towards risk, that there was no single characterisation of risk preference that was comprehensive enough to describe all individuals.

Consequently, Crum and his colleagues concluded that,

"differences in risk preference among individuals are expected."

It seems, therefore, that there is enough evidence to justify the definition of perceived or operational risk as a subjective concept.

This subjectivity, however, depends on a number of factors. The next sub-section will therefore concentrate on the discussion of these factors.

Factors Which May Influence Attitude Towards Risk

The preceding sub-section has provided ample evidence to show that perception of risk is based on subjective judgement of the individual. Consequently, different people behave differently towards risk. In some cases, even the same person may have different attitudes towards risk in different circumstances.

Naturally, the logical question that arises is, why does this happen?

In the first place, the concept of perceived risk is a highly contextual phenomenon endowed with idiosyncrasy. In other words, each person is an individual, with his own characteristic traits, and is being influenced by the environment or circumstance as he perceives it.

This would suggest that two groups of factors affect the decision maker's attitude towards risk. These groups of factors are:

- 1) Individual Characteristics; and
- 2) Situational Factors.

These two groups of factors will now be reviewed in greater detail.

Individual Characteristics

Some psychologists believe that a person's behaviour towards risk depends on whether he is a positive extreme (Broad Categorizers) or negative extreme (Narrow Categorizers).

According to this theory, the positive extremes are prone to risk or type I errors.

"They risk negative instances in an effort to include a maximum of positive instances."

By contrast, the Narrow Categorizers are more tolerant to type II errors, and they exclude many positive instances in order to minimise the number of negative instances.

By implication, what is being suggested here is that the Broad Categorizers are more concerned that by "not doing something, a good opportunity may be missed".

On the other hand, the Narrow Categorizers often "avoid doing things for fear that they might make a mistake and are not concerned about missed opportunities".

Some studies have provided some supporting evidence to this theory. The study by Popielarz⁽⁷⁰⁾, for example, provides some supporting evidence, though -

"this cannot be explained uniformly as a function of differences in perception."

Popielarz seemed to believe that the differences in attitude towards risk, which were exhibited by the participating subjects, could be explained more in terms of differences in sexes.

Wilson⁽⁷¹⁾ was also less conclusive, though he found that the -

"Normatives who had the highest average generalised self-confidence score saw significantly less risk attached to the high uncertainty than did the conservatives."

Newall⁽⁷²⁾ acknowledged the influence of self-confidence, experience, and training background of the decision maker as being of great relevance to his risk-taking behaviour. This has also been given some credence by Slovic⁽⁷³⁾, Bell⁽⁷⁴⁾ and Bennet and Mandell⁽⁷⁵⁾.

Collectively, what these studies have suggested is that the individual's behaviour towards risk is part of his innerself, and therefore is determined by his own personal characteristics. Hence, the concept of risk itself is subjective.

It must, however, be pointed out that the individual factors themselves may be triggered by situational factors. It may therefore be an oversimplification of judgement to assign a particular behaviour towards risk to an isolated factor alone.

Situational Factors

Barath⁽⁷⁶⁾ has provided some evidence that has some bearing on both the individual characteristics and the situational factors. However, he seems to have given more weight to situational factors by pointing out that the consumer's attitude towards risk-taking would seem to depend on how important the product may be to him at the time of purchase.

This seems to be well supported by Newall where he argued the case for the degree of "Product Essentiality". It is also consistent with the "Precipitating Circumstances" Baker⁽⁷⁷⁾ has incorporated into his buying model.

As a matter of fact, most of what has been reviewed so far on differences in attitude towards risk-taking can be explained by, and in terms of, some of the crucial variables in that model. This is quite clear in the works of Slovic⁽⁷⁸⁾ and Newall⁽⁷⁹⁾.

Slovic, for example, accepted the influence of personal characteristics in risk-taking behaviour. However, he maintained that the decision-maker's propensity to take risks is more of a function of the situation and the magnitude of the risk involved than of any personal characteristics.

Similarly, Newall did not only support this, but also brought in other variables. Thus, apart from the "Product Essentiality", and the "size of the expenditure involved", which are said to have remarkable influence on risk-taking, the degree of newness of the decision to be made, and "the factors provoking the (decision)", could also affect attitude towards risk.

Collectively, then, these variables have been described as "the characteristics of the purchasing problem".

The issue of "what is involved" seems consistent with the thinking of Cox and Rich⁽⁸⁰⁾. They maintain that the amount of risk perceived by the consumer and, thus, his attitude towards that risk seemed to depend on the amount at stake in the purchase decision, and the decision maker's assessment of loss or gain from his decision.

A recent study reported by Binswanger⁽⁸¹⁾ has also given some additional credence to this. In the study involving three hundred and thirty subjects in India, Binswanger found that when the amount to be lost was increased -

"near neutral and risk preferring behaviour virtually disappear."

A similar result was reported by Swalm⁽⁸²⁾ from a study in which one hundred business executives participated. In the study, Swalm found that some of the executives who showed some risk-seeking behaviour became risk averse, depending on what they thought they might lose if they behaved otherwise.

Further support for this appears in the study reported by Lorange and Norman⁽⁸³⁾. In this study, they found that the decision maker was 'risk-prone' as long as his liquidity position was good. However, the same decision maker became 'risk-averse' when his liquidity position was weak.

This sort of behaviour towards risk was perhaps better demonstrated by the study reported by Gordon and his colleagues⁽⁸⁴⁾. They constructed a game to investigate decision rules used in making risky choices. Thirty-four graduate students participated in the game.

After the administration of the game the findings led the investigators to conclude that -

"None of the experiment's participants behaved like risk lovers as long as their wealth was large enough to provide some expectations of a livelihood under risk aversion behaviour, and everyone deprived of that expectation became risk lovers."

Again, this shows that the decision maker's attitude towards risk may be governed by the situation in which he finds himself, and the context in which the decision will be made.

It would seem, therefore, reasonable to conclude that attitude towards risk depends not only on the personal characteristics of the decision maker, but more so on what is actually involved, and the situation in which the decision is to be made.

However, in a situation where the decision maker is actually making the decision on behalf of his company, then one would expect that, in addition to the stated factors, the company's policy on risk would certainly be taken into consideration.

Thus, Mao⁽⁸⁵⁾ certainly found significant individual differences in his study, but these differences were explained in terms of, among other things,

"the normal risk levels accepted by the subjects' businesses."

Opinions differ, however, as to what factors actually determine a company's normal acceptable level of risk. Certainly, however, the organisational structure of the company and how that company perceives its environments are some of such

factors (86) (87). Recently, a case has also been argued for "the size of the company and its financial standing" as being influential to its attitude towards risk⁽⁸⁸⁾.

In any case, most companies are expected to have their own policies and guidelines on decision making involving risk. Since these policies and/or guidelines are not only for handling and, perhaps, reducing "company risk", but also for the 'protection' of the decision maker, he is expected to behave accordingly.

Now that we have considered the problems of defining risk, its subjective nature, and the factors which affect our attitude towards risk, we can go on to review some of the most effective strategies which decision makers use to manage their perceived risk.

Risk Management Strategies

The review so far has concentrated on the issues which are associated with the definition of risk, its subjective nature, and the factors which appear to be responsible for this subjectivity. The main aim of this sub-section is to demonstrate how the decision maker manages his perceived risk.

There is little doubt that the decision maker's problem appears to be primarily that of choice under conditions that he cannot predict with precision.

As a protective measure, therefore, the decision maker tends to develop risk-management strategies to handle the hazards which are associated with decision making.

Such risk management strategies include:

1. Information gathering, or search;
2. Buying from well tried or reputable sources;
3. Passing the responsibility on to another person;
4. Reducing goals initially set;
5. Avoiding the decision altogether; and
6. Minimising time and money spent on the decision.

Sweeney, et al⁽⁸⁹⁾ for example, have admitted that in general, it has been found that buyers employ various strategies of risk reduction depending upon the buying situation and their attitudes toward the strategies.

According to them, such strategies include-

"engaging in product related discussions, remaining loyal to a particular brand of product, altering one's buying goals, and seeking additional information about the product or supplier."

Information search has been widely acknowledged and supported by a number of studies, as one of the most important risk management strategies.

For example, Hakansson and Wootz⁽⁹⁰⁾, Saleh et al⁽⁹¹⁾, subscribed to information search as one of the most effective strategies for managing perceived risk.

However, one must bear in mind that perception of risk is subjective and so is perception of information and the sources of that information.

Since there are various sources of information, this becomes of considerable importance, particularly in understanding how decision makers evaluate or process information relating to their decision situations.

It seems, therefore, proper to point out that, as far as the decision maker is concerned, the important thing in information search, as a risk-reducing mechanism, is not just the search or acquisition of information, but also the sources and processing of that information.

A number of studies give credence to this view. Levitt⁽⁹²⁾ for instance, conducted a study to examine the effects of quality of sales presentations upon groups of students, buyers and chemists.

He found that the amount of personal risk to which the individual decision-maker is exposed in a buying or rejection decision has considerable influence on his final decision.

In a low-risk buying situation, Levitt found that the quality of the sales presentation played a greater part in the final

decision when more technically sophisticated personnel were involved.

In a high-risk situation, he found that the reverse was the case.

Levitt then concluded that a good sales presentation has greater durability than a good company reputation (implying Source and Sleeper effects), and that a well planned and well presented direct sales presentation can be potentially useful as a competitive strategy for the less well-known company.

Levitt's work is open to many interpretations. One possible interpretation is that although the work was primarily on communication effect, the study demonstrates that the quality of information and the background of those receiving and processing the information have a lot to do with the way such information is perceived or interpreted.

The study also demonstrated that, in a low-risk situation 'source-effect' cannot be traced to the company's reputation, but the presentation itself, since company reputation is supposed to be eroded by the "Sleeper effect".

However, this is also related to how technically sophisticated the customers are. In a high-risk buying situation, "Source-effect" appears to be related to the company's reputation which the customers consider as a safety measure.

In this case the customers tend to be more concerned about from what company the sales person is, than about what the sales person may have said or presented.

The study by Cunningham⁽⁹³⁾ also showed the importance of sources and processing of information by customers, and the use of such information as a risk management mechanism.

He carried out a study of headache remedies, fabric softeners, and dry spaghetti. He found substantial evidence of consumer reliance on word-of-mouth information to reduce high perceived risk. Arndt⁽⁹⁴⁾ found a similar result in his study of the introduction and acceptance of a new brand of coffee.

Woodruff⁽⁹⁵⁾ has demonstrated that different channels of information produce different effects on the nature and structure of consumer uncertainty. Barrach also found some relationship between women's risk handling styles and the ability of television commercials to induce attitude change in the women subjects.

In another study, Payne⁽⁹⁶⁾ found that the way the decision maker searches for and processes information for a "preferential choice" depends on the nature and the complexity of the problem he wants to solve.

This is exemplified in the study reported by Sheth and Venkatesan⁽⁹⁷⁾. Sheth and Venkatesan carried out an experimental study to explore individual consumer's risk-reducing processes over time. In order to find differences in magnitude of risk-reducing processes, perceived risk was manipulated by creating a low-risk group and a high-risk group.

They found that both groups spent some time seeking information about both chosen and rejected brands. However, the high-risk group spent more time on seeking information. They also found that both groups spent some time on pre-purchase deliberations.

However, both information seeking and pre-purchase deliberations declined as the purchase decisions were repeated, though the rate of decline was slower for the high-risk group than for the low-risk group. These findings do not only support

information search as a risk-reducing strategy, but also show that the higher the perceived risk the more the search for information.

Perry and Hamm⁽⁹⁸⁾ have also provided some supporting evidence. They maintain that the consumer's tendency to be concerned about social and economic worth of a product he intends to buy leads him to search for more information.

They backed this assertion with empirical evidence by investigating the relationship between the importance of personal influence as a source of information and the degree of risk in twenty-five purchasing decisions.

Their findings led them to conclude that the higher the risk involved in a particular purchasing decision, the greater the importance of personal influence. However, this was found to be more significant "where social risk is involved".

Newman and Staelin⁽⁹⁹⁾ found a similar result in their study of household appliances buyers. However, unlike Perry and Hamm, they found that information search increased directly with the costs of appliances.

Collectively, these studies have revealed some important phenomena about risk-reducing behaviour of decision makers. However, some reservations have been expressed as to whether some of the customer's purported actions, which are regarded as risk-reducing behaviour, are, in fact, not "irrational", especially when it comes to source loyalty.

Bauer⁽¹⁰⁰⁾, for example, admitted in his work that, in general, some literature had treated source loyalists as being irrational. However, he believed that "if risk is, in fact, involved, reliance on source credibility and personal influence can be highly responsible and rational behaviour".

In support of Bauer, Arndt⁽¹⁰¹⁾ reported the findings of a study which he undertook. He found that the relationship between the level of perceived risk and the amount of information search was similar to the findings of Sheth and Venkatesan⁽¹⁰²⁾. However, Arndt also found that there was some evidence to suggest that the use of information search as a risk-reducing strategy was related not only to the level of perceived risk, but also to the personal characteristics of the individual.

A number of other studies also reported similar results. Bauer and Cox⁽¹⁰³⁾, for example, studied the effects of new information on women who had made judgements about the quality of identical pairs of stockings. They found that women put differing amounts of confidence on the new information, depending on the individual's confidence in her ability to judge the stockings, and her ability to judge the source of the new information.

In another study of how decision makers search for and process information, Payne⁽¹⁰⁴⁾ concluded that "Important individual differences ... were shown to exist".

Other supporting studies include that of Bell⁽¹⁰⁵⁾. He interviewed two hundred and thirty four new car buyers in the United States. His main aim was to find out if there was any relationship between general and specific self-confidence, and the information search.

His findings led him to conclude that the level of consumer's general and specific self-confidence influences his perception of risk, and, consequently, the level of his information search and the kind of source of information he uses.

In a similar research, Bennett and Mandell⁽¹⁰⁶⁾ issued one hundred and forty-two new car buyers in Harrisburgh, Pennsylvania,

with questionnaires which they were required to complete. After that, the participants were interviewed soon after making the actual purchase decisions.

Primarily, the aim of the study was to find out the level of relationship between a prior use of a product (in this case, a car) and information search before a repeat purchase of that product or brand.

The result of the study indicated that the participants tended to seek less information before buying a particular car make with which they had had prior experience.

Although the finding of this study clearly demonstrated the effect of what psychologists call 'Learning', its obvious implication also points to the view that a decision maker seeks information not for its own sake, but for a purpose, and, where he feels that the information at his disposal is enough to satisfy his choice problem, then he makes less effort for more information.

This view is also exemplified in the study reported by Swan⁽¹⁰⁷⁾. In an experimental study, Swan used eighty marketing students and exposed them to a series of choice situations of four 'new' artificial brands of shirts. All information about the shirts was unbiased, though more information could be acquired at a cost. The choice behaviour of the participants provided considerable supporting evidence that information search and prior experience with the product were inversely related.

However, Swan added that some of the evidence provided by the study suggested that information search depended on an increase in both uncertainty surrounding the purchase and the importance of the purchase to the customer.

From what has been reviewed so far, it seems there is no doubt that information search has been overwhelmingly acknowledged and supported by research findings as an effective risk-reducing mechanism.

However, it is not the only strategy which decision makers employ to reduce their perceived risk. A decision to withdraw from an intended decision is also a risk-reducing mechanism, though this is often ignored.

Roselius⁽¹⁰⁸⁾, for example, included eleven risk-reducing strategies in his study, though, in actual fact, most of them were other forms of information search. In any case, Roselius conducted one of the most comprehensive studies on risk-reducing strategies, involving four hundred and seventy-two housewives in Denver, Colorado.

He established various "losses", economic and otherwise, which the participating housewives perceived as possible in actual buying situations. He then asked the participants to rate, with reference to each of the choice situations, the usefulness of eleven different methods of reducing risk.

He found that "brand loyalty" and "major brand image" evoked the most consistent favourable responses and "were ranked one and two for all types of loss".

In another study, covering four hundred and two families over a period of three years, Cunningham⁽¹⁰⁹⁾ not only found that "a significant amount of brand loyalty does exist", but also that the view that socio-economic factors were positively correlated with loyalty behaviour was not supported.

The literature I have reviewed so far seems to deal only with how individual consumers handle their perceived risk in buying situations that involve relatively small amounts of money.

From the evidence reviewed, there is no doubt that the individual consumer would normally use suitable risk-reducing strategy to reduce his perceived risk in a particular purchase situation of uncertainty.

However, the important question is whether these risk-reducing mechanisms are limited to individual consumers, or whether they are also employed by companies or business organisations. Results of studies suggest that they are equally applicable to business organisations.

The following section will therefore consider how business executives, representing their organisations, handle their perceived risk.

Risk-Management Strategies of Business Executives

In marketing, most of the works on risk management strategies have been in the consumer market. However, there are also some studies which show that the risk handling strategies employed by individuals in the consumer market are, with some modifications, similar to those employed by business organisations to handle their perceived risk in buying situations.

Notable among such studies are those of Crow et al⁽¹¹⁰⁾, Wind⁽¹¹¹⁾, Newall⁽¹¹²⁾, Cardozo and Cagley⁽¹¹³⁾ and that of Levitt⁽¹¹⁴⁾, some of whose findings are very interesting. There are also some innovation studies which show that business organisations use risk management mechanisms similar to those used by the individual consumer. Some of these studies will be reviewed in detail.

Risk Factors

Newall⁽¹¹⁵⁾ has provided some interesting evidence in a study on a number of issues relating to perception and handling of risk in the industrial market.

Since the study itself is relatively recent and covers considerable areas which are relevant to the present review, it seems worthwhile to review it in some considerable detail.

The study itself covered basically the business equipment sector with emphasis on reprographic equipment. Four companies manufacturing in this sector were covered.

With their help, Newall was able to develop a list of two hundred industrial customers, out of which fifty-five who were known to have purchased at least one item from the required range within the previous two years participated fully in the study.

The respondents were contacted first by mail. This was then followed by personal interviews based on a prepared questionnaire schedule.

The determinants of perceived risk were classified into three main groups:

- 1) Group one consists of factors which describe the purchase problem. Included in this group are:
 - (a) the size of the product expenditure;
 - (b) the type of purchase or buying task;
 - (c) the degree of product essentiality; and
 - (d) the factors provoking purchase.

- 2) Group two is made up of those factors which describe the industrial buyer. Such factors include:
 - (a) his level of general and specific self-confidence;
 - (b) his level of decision expertise;
 - (c) his purchase history; and
 - (d) his education/training background, including his

professional affiliation.

- 3) The third group is comprised of factors which related to or describe the buying or organisational environment.

However, because "precedents within the literature are not so forthcoming", Newall decided that "buyer risk" and "company risk", suggested by Bauer, could form a good base on which the following factors may be included:

- a) the size and financial standing of the company;
- b) the nature of company purchasing structure specified by -
 - (i) the degree of decision centralisation; and
 - (ii) the degree of decision routinisation.

After the grouping of risk factors, Newall then proceeded to find out "whether a consistent explanation can be given by recourse to the factors listed above, taken either in isolation or in combination for the levels of risk observed in a number of buying situations".

The empirical analysis of the study showed some interesting results. For instance, although most factors were found to be related in their effects on perceived risk, the primary risk determinants were found to be those (in group one) which define the purchase problem, such as the type of purchase and the size of the expenditure involved.

It was also found that modified rebuys involving a change in the class of product purchased, or a change in the source of supply, or both, "exhibited" significantly higher levels of risk.

However, within the rebuy class itself, "the level of risk was not sensitive to variations in the price of the equipment".

Straight rebuys were naturally found to be "characterised" by low levels of risk. But this level tended to rise as the level of purchase expenditure increased.

This finding thus provided some supporting evidence that there is a direct inverse relationship between the level of expenditure involved in a purchase and the level of perceived risk.

This was found to be particularly the case where the decision to be made concerned a first time purchase.

In view of this evidence, Newall concluded that the factors (group two above) used to describe the buyer, in terms of his purchase expertise, seemed to have "little relevance to the level of decision risk perceived".

However, in view of other findings, even in the study itself, it seems that this conclusion must not be generalised.

In the first place, the degree to which the factors (group two) used in describing the buyer affect perceived risk depends on the nature and the structure of the decision making procedure, as well as the size of the company concerned.

This, in turn, is related to, and influenced by, the level of personal or buyer risk and company risk. In larger companies, for instance, it is possible that the highly structured purchase procedure acts as a protective mechanism which diffuses the level of risk perceived by members of the buying group.

There is, therefore, a tendency for each buying individual to feel absolved from accepting the responsibility for the consequences of the decision.

"As a result, members of the buying group become involved in the decision as a matter of course or routine."

In most small companies, however, such a defence mechanism may not exist, and in some cases the buyer may have to perform many of the buying roles himself. This increases his consciousness of decision accountability and the consequences of the decision in general.

As such, buyers in small companies perceive high levels of risk, but this cannot be dissociated from the factors (group two above) which describe the buyer.

A rather surprising finding of the study was that, although most large companies have highly structured purchase procedures which act as a risk management mechanism, "the size of the buying group itself does not seem to be determined in any way by the level of decision risk".

Rather, empirical analysis in this respect suggested that "it is a situational or environmental phenomena where the primary determinants are those characteristics of organisational environment defined by the size, financial standing, and the decision making structure of the buyer company".

A further analysis of the associated factors showed that, although the size of the buying group did not vary within categories of buyer company, irrespective of the level of buyer and company risk, it did vary across categories of buyer companies.

Newall, therefore, concluded that the most likely explanation which could be given for the results was that large companies, because of their size and structured purchase procedure, naturally have large decision groups. In addition, buyers in large companies perceive lower levels of risk.

However, since both the level of risk and the size of the buying group were found to be determined by separate sets of factors, but because risk was found in part to be influenced by organisational characteristics, Newall concluded that "there is a non-associative, non-causative relation between them".

This conclusion is difficult to generalise since it is generally assumed that the composition of most buying groups takes into account the nature of the task to be performed by such groups. Certainly, this has some risk management connotation.

Seen in this light, therefore, it would seem most likely that both the composition of the buying group and the purchase procedure which that group must follow are intended to serve as risk management strategies.

Risk Management Mechanisms

Buying decisions in industrial marketing represent a complex set of activities engaged in by many members of the buying company, and normally result in a commitment to purchase the required goods and/or services from the vendor.

Generally, it is held that the length of time which the buying group may take to arrive at a formal sanction of the purchase decision is related to the level of risk perceived by the buying group, and the circumstances leading to the purchase requirement.

This was one of the issues which Newall's study investigated. He defined decision duration as -

"that period of time which elapsed between recognition of the purchase problem and formal sanction of the purchase decision."

The analysis of the data showed that both the levels of buyer risk and company risk showed significant associations with the duration of the buying decision, and this duration increased as the level of perceived risk also increased.

Consequently, Newall concluded that it would seem that -

"there is a direct relationship between the level of risk and decision duration."

This relationship was, however, found to be strongest at high levels of company risk, irrespective of the size of the buyer company.

Apart from this, the study also addressed itself to the questions of whether business organisations employ source loyalty and/or information search as risk management mechanisms.

The empirical analysis of the study showed that buyers involved in high-risk decisions seemed "no more nor less likely to remain loyal".

However, when company risk variable was used "buyers tended to be significantly less loyal at high levels of company risk and vice-versa".

Since company risk and buyer risk variables were found to be related, the only explanation for the buyer's behaviour was found to be "the characteristics of the buyer himself".

Thus, the buyer's training, background, purchase history, and decision experience were found to be responsible for his propensity to source loyalty.

Consequently, Newall concluded that source loyalty did not seem to be an adequate risk-handling mechanism "because in decision involving high levels of company risk and buyer risk, buyers tended to reconsider many more available sources of supply, irrespective of their degree of buying expertise".

Information search was therefore found to be a more active form of risk management strategy, once the risk was considered considerably high.

The study, therefore, showed extensive search for information at high levels of risk. However, the nature of information sought differed among the buying managers. High expertise buyers tended to seek information from buyer dominated sources, while low expertise buyers tended to rely on seller-dominated sources of information.

Since this was found to be related to the size and structure of the buyer company, Newall concluded that the nature of the information seeking process itself seemed to be a function of the level of the buyer's expertise, the level of risk, and the size and structure of the buyer company.

Admittedly, the study showed some evidence of source loyalty at low levels of risk. This was interpreted to mean that at low levels of risk the purchase problem may not be considered sufficiently important to warrant a detailed searching of the market.

Newall, however, had to acknowledge that in some cases decision makers may remain loyal where experience had shown a particular source to be superior to others.

Wind^(115a) also reported some supporting evidence of the existence of source loyalty. He examined the purchase of industrial components by an electronics company to find out whether

the buying behaviour of the purchasing department showed any evidence of source loyalty. He found "substantial evidence to support the existence of source loyalty".

The experimental study of Cardozo and Cagley also provided some interesting supporting evidence, not only for source loyalty as a risk management strategy, but also for information search as a risk management mechanism.⁽¹¹⁶⁾

Primarily, the purpose of the study was to investigate how industrial purchasers chose suppliers, and how to specify characteristics of suppliers and bids selected in particular situations by particular types of procurement managers.

Sixty-four procurement managers were used, and all participated in a buying game in which they were to choose from available sources of supply, and call for bids.

The result showed that more than sixty-two percent (62.4%) of all bids solicited was on the basis of source loyalty.

Another finding of the study, which is of particular relevance to companies operating in the construction industry, was that, generally, procurement managers preferred well known firms and firms which provided a lot of information about themselves as bidders over unfamiliar firms and those which provided less information about themselves.

This preference, however, was found to be significantly greater in high-risk rather than in low-risk purchase situations. Interestingly, more bids were solicited in high-risk than in low-risk situations. In other words, procurement managers sought more information in high-risk than in low-risk situations.

A similar result was reported by Wilson⁽¹¹⁷⁾ in his study of industrial buyers' decision making styles. He found that managers with a greater "need for certainty" paid significantly more for information.

Related to this is the study reported by Gronhaug⁽¹¹⁸⁾. He studied one hundred and twenty purchasing cases in thirty companies and found substantial evidence to show that information search was positively related to the level of risk perceived by the decision maker.

The findings of Crow et al⁽¹¹⁹⁾ introduced a new dimension in the role of information search as a risk management strategy. The result of the study showed that industrial buyers not only search for and make use of information to handle their perceived risk, but also that in evaluating potential sources of supply, the decision makers make use of available information to establish a threshold on the basis of which all the perceived risk is assessed and the final decision made.

Thus, the use of techniques such as Vendor Analysis⁽¹²⁰⁾ (121)⁽¹²²⁾, which allows the industrial buyer to screen potential (and sometimes existing) suppliers, and thus improve his judgement in supplier selection, or Capital Investment Appraisal Techniques (CIAT)⁽¹²³⁾ which provide some information on returns to the investor and thus improve his choice of investment, is, in essence, a form of searching for information to provide a threshold for decision making.

One thing seems to have emerged from this review. Obviously, there are some differences in terms of the size of the amount, and thus risk involved, and the procedural behaviour when risk is considered in terms of the individual decision maker and the organisation.

However, it would seem that the risk management strategies employed by the individual decision maker are basically the same as those employed by business executives when they are making decisions on behalf of their organisations.

The differences, if one therefore insists, seems largely a matter of degree.

This point is also expressed by Libby and Fishburn⁽¹²⁴⁾. They maintain that, although a lot of business decisions were products of group discussions, the basic decision variables considered by groups tended to be similar to those considered by individuals.

However, they acknowledged that the existence of three factors may reduce the effect of individual personal characteristics on business risk-taking behaviour.

These factors are:

- 1) Personnel selection and promotion processes produce a relatively homogeneous group of decision makers within the company;
- 2) Common training experience and feedback received by decision makers also tend to minimise deviations from company risk policies;
- 3) Since many business decisions are made by committees, some of the remaining personal differences tend to be de-emphasised when individual judgements are combined to form group decisions.

Libby and Fishburn have also been supported by Slovic⁽¹²⁵⁾ who argued that, comparatively, decisions made by groups tend to be

riskier than the average of the individual member's decisions prior to group discussions.

In order to buttress his point, Slovic brought in the concept of 'shifts', and maintained that individual risk-taking levels tended to increase as a result of group discussions.

This occurred as a result of the "diffusion of responsibility" hypothesis, which asserts that in group decisions, the individual feels less responsible personally if his choice fails.

Thus, he is not afraid "to recommend or accept riskier courses of action".

Drawing from his work, Newall⁽¹²⁶⁾ also supported this view. He maintained that the highly structured purchase procedure of companies tends to act as a protective mechanism which, in a way, reduces or diffuses the level of risk perceived by members of the buying group.

Thus, because of the shared nature of the decision, there is a tendency for each buying individual to feel absolved from accepting the responsibility for the consequences of the decision.

The main issue in this case then seems to be that of whether the risk is personal or impersonal. But, as we have seen, the basic mechanisms for managing the perceived risk are the same. Any distinction seems largely a matter of degree.

General Conclusion

This chapter has attempted to show that perceived risk is a concept associated with loss. However, the concept itself is a highly contextual phenomenon, and so the perception of risk should be judged in the context in which the behaviour of the individual may occur.

Risk is also influenced by other factors, such as the characteristics of the individual, the magnitude of what is involved, other situational factors, and the training background or experience of the individual.

Since most business decisions are rarely devoid of risk, the decision maker tends to develop risk management strategies to handle his perceived risk.

One interesting finding about the whole review is that it shows a lack of any previous research on how the seller perceives and manages his risk.

The assumption, thus, so it seems to me, is that only buyers perceive risk and so they develop strategies to manage the risk.

This study does not share this view. Sellers can also be in danger of risk and this can be managed by applying appropriate strategies. Marketing is one such strategy.

REFERENCES

1. Erikson, C A, Risk Sharing in Construction Contracts, Unpublished PhD, 1979, University of Illinois at Urbana - Champaign.
2. Anderson, M R, Handling Risk in Defense Contracting, Harvard Business Review, July-Aug, 1969, P90-98.

See also: Ginyerh, P H and Whittaker, D J, "Managerial Judgement in a Competitive Bidding Model", Operational Research Quarterly, Vol 24, No 2, 1973, p181-191.
Franz Edelman, "Art and Science of Competitive Bidding", HBR, July-Aug, 1965, p53-66.
3. McFarlane, D D and Horowitz, I, "Risk and the Business Decision", Business Horizons, Summer, 1967, p90.
4. Pollatsek, A and Tversky, A, A Theory of Risk, Journal of Mathematical Psychology, No 7, 1970, p541.
5. Pollatsek, A and Tversky, A, A Theory of Risk, Ibid, p1541.
6. Alba, U N, Economics and Risk, The Geneva Papers on Risk and Insurance, No 16, 1980, p38.
7. Jackson, B, Manage Risk in Industrial Pricing, Harvard Business Review, July-Aug, 1980, p122.
8. Cooley, P L, A Multidimensional Analysis of Institutional Investor Perception of Risk, Journal of Finance, Vol XXX11, No 1, March 1977, p77.
9. Hertz, D B, Investment Policies that Pay Off, Harvard Business Review, Jan-Feb 1968, p997.
10. Bauer, R A, "Consumer Behaviour as Risk Taking", in Cox, D F (ed), Risk Taking and Information Handling in Consumer Behaviour, Boston, Harvard University, 1967, p389-98.
11. Taylor, W J, The Role of Risk in Consumer Behavior, Journal of Marketing, Vol 38, April 1974, p56.
12. Green, P E, "Risk Attitudes and Chemical Investment Decisions", Chemical Engineering Progress, Vol 59, No.1, Jan 1963, p35-40
13. Nicosia, F M, Perceived Risk, Information Processing, and Consumer Behaviour, Journal of Business, Vol 42, 1969, p163.
14. Jensen, C M, Risk, the Pricing of Capital Assets and the Evaluation of International Portfolios, Journal of Business, Vol 42, 1969, p171.
15. Weston, J F and Brigham, E F, Managerial Finance, (British Edition), p151, Holt, Rinehart and Winston, London, 1978.

16. Van Horne, Financial Management and Policy, 4th ed, Prentice Hall, N J, 1977, p115.
17. Sharpe, W F, Portfolio Analysis and Capital Markets, McGraw Hill, New York, 1970, p25-26.
18. Knight, F H, Risk, Uncertainty and Profit, Houghton Mifflin Company, New York, 1965, p233.
19. Baker, M J, Marketing New Industrial Products, The MacMillan Press Ltd, London, 1975, p50-51.
20. McFarlane, D D and Horowitz, I, op cit, p83-84.
21. Baker, M J, op cit, p50-51.
22. Duncan, B R, "Characteristics of Organisational Environments and Perceived Environmental Uncertainty", Administrative Science Quarterly, Vol 17, No 3, 1972, p318.
23. Baker, M J, op cit.
24. McFarlane, D D and Horowitz, I, op cit.
25. Hill, R W and Hillier, T J, Organisational Buying Behaviour The MacMillan Press, London, 1982.
26. Hertz, D B, Risk Analysis in Capital Investment (Reprint), Harvard Business Review, Sept-Oct, 1979, p170;178.
27. Carlson, Sune, International Financial Decisions, North-Holland Publishing Company, Amsterdam, 1969, p22-23.
28. McFarlane, D D and Horowitz, I, op cit, p84.
29. Duncan, B R, op cit, p318.
30. Bauer, R A, in Cox, D F (ed), op cit.
31. Webster, F E, Industrial Marketing Strategy John Wiley and Sons 1979.
32. Hill, R W and Hillier, T J, op cit.
33. Cox, D F and Rich, S U, Perceived Risk and Consumer Decision-Making - The Case of Telephone Shopping, Journal of Marketing Research, Nov, 1964, p33.
34. Peter, P J and Ryan, M J, An Investigation of Perceived Risk at the Brand Level, Journal of Marketing Research, Vol XlII, May 1976, p184.

35. Pruitt, D A, "Pattern and Level of Risk in Gambling Decisions", Psychological Review, May 1962, p187-201.
36. Slovic, P and Lichtenstein, S, Importance of Variance Preferences in Gambling Decisions, Journal of Experimental Psychology, Dec 1968, p646.
37. Jay, O M and Barron, F H, Behavioral Risk Constraints in Capital Budgeting, Journal of Financial and Quantitative Analysis, Nov 1974.
38. Slovic, P, Psychological Study of Human Judgement: Implications for Investment Decision Making, Journal of Finance, Sept 1972, p779-799.
39. Edwards, W, The Theory of Decision Making, Psychological Bulletin, July 1954, p380-417: see particularly p396.
40. Slovic, P, The Relative Influence of Probabilities and Pay-Offs upon Perceived Risk of a Gamble, Psychonomic Science, Oct 1967, p223-224.
41. Payne, J W, Relation of Perceived Risk to Preferences Among Gambles, Journal of Experimental Psychology: Human Perception and Performance, Feb 1975, p86-94.
42. Swalm, R O, Utility Theory - Insights into Risk Taking, Harvard Business Review, Nov-Dec 1966, p123-136.
43. Halter, A N and Dean, G W, Decisions Under Uncertainty, Cincinnati, South-Western Publishing Company, 1971.
44. Grayson, C J, Decisions Under Uncertainty: Drilling Decisions by Oil and Gas Companies, Boston, Harvard Business School, Division of Research, 1959.
45. Rapoport, A and Wallsten, T S, Individual Decision Behaviour, Annual Review of Psychology, 1972, p131-176.
46. Alderfor, C P and Bierman, H, Choices with Risk: Beyond the Mean and Variance, Journal of Business, July 1970, p341-353.
47. Kogan, N. and Wallach, M A, Risk Taking. Holt, Rinehart, and Winston, N.Y. 1964.
48. Mao, J C T, Survey of Capital Budgeting: Theory and Practice, Journal of Finance, May 1970, p349-360.
49. Newall, J, Industrial Buyer Behaviour; A Model of the Implications of Risk Handling Behaviour for Communication Policies in Industrial Marketing, European Journal of Marketing, Vol 11, No 3, 1977, p165-211.

50. Cardozo, R N and Cagley, J W, Experimental Study of Industrial Buyer Behaviour, Journal of Marketing Research, Vol V111, Aug 1971, p329-334.
51. Swalm, R O, op cit, p135.
52. Cooley, P L, op cit, p77.
- ✓ 53. Laurence, J. "When to run Risks". Management Today April 1983. Page 72 77.
54. McFarlane, D D and Horowitz, I, op cit, p83.
55. Swalm, R O, op cit, p123-136.
56. Grayson, C J, op cit.
57. Halter, A N and Dean, G W, op cit.
58. Spence, H E, et al, Perceived Risk in Mail Order and Retail Store Buying, Journal of Marketing Research, Vol V11, Aug 1970, p364-369.
59. Barnes, J D and Reinmuth, J E, Utility Functions in a Competitive Bidding Setting, Decision Sciences, Oct 1976.
- ✓ 60. Lorange, P and Norman, D V, How Attitudes Towards Risk Influence Investment Decisions, European Business, Spring 1972, p71-80.
61. Cox, D F, op cit, p36-39.
- ’ 62. Cunningham, S M, "The Major Dimensions of Perceived Risk", in Cox, D F (ed), op cit, p37-38.
63. Spence, H E, et al, op cit, p364-369.
64. Cooley, P L, op cit, p67-77.
65. Bassler, J F et al, Multiple Criteria Dominance Models: An Empirical Study of Investment Preferences, University of British Columbia, Working Paper, No 500, Nov 1977.
66. Green, P E, "Risk Attitudes and Chemical Investment Decisions", Chemical Engineering Progress, Vol 59, No 1, Jan 1963, p35-40.
67. Moore, P G and Thomas, H, Measurement of Problems in Decision Analysis, Journal of Management Studies, Vol X, May 1973, p172-1993.
68. Magee, J F, Decision Trees for Decision Making, Harvard Business Review, July-Aug 1964, p131.

69. Crum, R L, et al, Risk Preference: Empirical Evidence and its Implications for Capital Budgeting, Nijenrode Studies in Business, Vol 6, 1981, p14-34: see particularly p22.
70. Popielarz, D T, An Exploration of Perceived Risk and Willingness to Try New Products, Journal of Marketing Research, Vol 1V, Nov 1967, p368-372.
71. Wilson, D T, Industrial Buyers' Decision Making Styles, Journal of Marketing Research, Vol VI11, Nov 1971, p433-436.
72. Newall, J, op cit, p168.
73. Slovic, P, Psychological Study of Human Judgement: Implications for Investment Decision Making, The Journal of Finance, Vol 27, No 2, 1972, p779-799.
74. Bell, G D, Self-Confidence and Persuasion in Car Buying, Journal of Marketing Research, Vol 1V, Feb 1969, p46-51.
75. Bennet, P D and Mandell, R M, Prepurchase Information Seeking Behavior of New Car Purchasers: The Learning Hypothesis, Journal of Marketing Research, Vol VI, Nov 1969, p430-433.
76. Barach, J A, Advertising Effectiveness and Risk in the Consumer Decision Process, Journal of Marketing Research, Vol VI, Aug 1969, p314-320.
See also the same author; Risk Style and Consumer Choice, The Southern Journal of Business, Vol 3, July 1968, p129.
77. Baker, M J, Marketing: An Introductory Text (3rd ed), The MacMillan Press Ltd, London, 1981, p99-100.
78. Slovic, P, op cit, p795.
See also: Libby R, and Fishburn, P C, Behavioral Models of Risk Taking in Business Decisions, A Survey and Evaluation, Journal of Accounting Research, Vol 15, 1977, p286-287.
79. Newall, J, op cit, p167-168.
80. Cox, D F and Rich, U S, op cit, p33.
81. Binswanger, P H, Attitudes Towards Risk: Theoretical Implications of an Experiment in Rural India, The Economic Journal, No 364, Vol 91, Dec 1981, p868-869.
82. Swalm, R O, op cit, p123-124.
83. Lorange, P and Norman, D V, op cit, p77.
84. Gordon, M J, et al, Experimental Evidence on Alternative Portfolio Decision Rules, American Economic Review, March 1972, p110.

85. Mao, J C T, op cit.
86. Duncan, B R, op cit, p313-325.
87. Baker, M J, Marketing New Industrial Products, op cit, Chapter 5.
88. Newall, J, op cit, p168.
See also: Webster, F E, New Product Adoption in Industrial Markets: A Framework for Analysis, Journal of Marketing, Vol 33, July-Aug 1969, p35-39.
89. Sweeney, T W, et al, "An analysis of Industrial Buyers' Risk-Reducing Behaviour: Some Personality Correlates."
Proceedings of AMA 1973. Page 217-221.
90. Hakansson, H and Wootz, B, Supplier Selection in an International Environment - An Experimental Study, Journal of Marketing Research, Vol X11, Feb 1975, p46-51.
91. Saleh, F A, et al, Industrial Buying Behaviour and the Motor Carrier Selection Decision, Journal of Purchasing, Feb 1972, p18-33.
92. Levitt, T. "Industrial Purchasing Behaviour: A Study of Communication Effects". Harvard University, 1965.
93. Cunningham, S M, "Perceived Risk as a Factor in Informal Consumer Communications", in, Cox, D F (ed), op cit, p265-288.
94. Arndt, J, "Perceived Risk, Sociometric Integration and Word-of-Mouth in the Adoption of a New Food Product", in, Cox, D F (ed), op cit, p289-316.
See also: Arndt, J, Role of Product Related Conversations in the Diffusion of a New Product, Journal of Marketing Research, Vol 4, Aug 1967, p291-295.
95. Woodruff, R B, Brand Information Sources, Opinion Change, and Uncertainty, Journal of Marketing Research, Vol 9, Nov 1972, p414-417.
96. Payne, W J, Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis, Organisational Behaviour and Human Performance, Vol 16, 1976, p366-387: see particularly p384.
97. Sheth, N J and Venkatesan, M, Risk-Reduction Process in Repetitive Consumer Behaviour, Journal of Marketing Research, Vol V, Aug 1968, p307-310.
98. Perry, M and Hamm, B C, Canonical Analysis of Relations between Socio-Economic Risk and Personal Influence in Purchase Decisions, Journal of Marketing Research, Vol VI, Aug 1969, p351-354.

99. Newman, J W and Stadin, R, Prepurchase Information Seeking for New Cars and Major Household Appliances, Journal of Marketing Research, Vol 1X, Aug 1972, p249-257.
100. Bauer, R A, Risk Handling in Drug Adoption: The Role of Company Preference, Public Opinion Quarterly, No 25 (Winter), 1961, p557-559.
101. Arndt, J, Role of Product-Related Conversations in the Diffusion of New Products, Journal of Marketing Research, Vol 1V, Aug 1967, p291-295.
102. Sheth, N J and Venkatesan, M, op cit, p307-310.
103. Bauer, R A and Cox D F, Self-Confidence and Persuasibility in Women, Public Opinion Quarterly, Vol 28, (Fall), 1964, p453-466.
104. Payne, W J, "Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis", op cit, p385.
105. Bell, G D, op cit, p46-52.
106. Bennet, P D and Mandell, R M, op cit, p430-433.
107. Swan, J E, Experimental Analysis of Predecision Information Seeking, Journal of Marketing Research, Vol VI, May 1969, p192-197.
108. Roselius, T, Consumer Rankings of Risk Reduction Methods, Journal of Marketing, Vol 35, Jan 1971, p56-61.
109. Cunningham, R M, Brand Loyalty - What, Where, How Much, Harvard Business Review, Jan-Feb 1956, p116-128: See particularly p121-123.
110. Crow, L E et al, Industrial Buyers' Choice Strategies - A Protocol Analysis, Journal of Marketing Research, Vol XVll, Feb 1980, p34-44.
111. Wind, Y, Industrial Source Loyalty, Journal of Marketing Research, Vol 7, Nov 1970, p450-457: See particularly p453-454.
112. Newall, J, op cit.
113. Cardozo, R N and Cagley, W J, op cit, p329-334.
114. Theodore Levitt, op cit.
115. Newall, J, op cit, p167-211.

- 115a. Wind, Y, op cit, p35-38.
116. Cardozo, R N and Cagley, W J, op cit. Page 329-34.
117. Wilson, D T, op cit.
118. Gronhaug, K, "Search Behaviour in Organisational Buying", Industrial Marketing Management, Vol 4, 1975, p15-23.
119. Crow, E L et al, op cit, p287-288.
120. Hutt and Speh, Industrial Marketing Management, Dryden Press, London, 1981, p62-65.
121. Webster, E F, Industrial Marketing Strategy, Ronald Press, 1979, p43-48.
122. Hill, M R, et al, Industrial Marketing, Irwin Inc, 1975, p100-109.
123. Sizer, J, An Insight into Management Accounting, Penguin, 1981, Chapter 8.
124. Libby, R and Fishburn, P C, op cit, p287-288.
125. Slovic, P, op cit, p776.
126. Newall, J, op cit, p177-178.

CHAPTER THREE

INTRODUCTION

The greatest risk that a business organisation can face is the risk of collapse⁽¹⁾. In our present business environment, companies are being told that they cannot survive, at least in the long run, without the acceptance and application of the marketing concept, in which the customer becomes the focus of the firm's business activities⁽²⁾.

If this is true, then it is difficult to see how the industrial organisations, in general, and the construction companies, in particular, can afford to ignore marketing and its concept, particularly when the failure rate of companies in the construction industry is about the highest when compared with other industries⁽³⁾.

The Theme

The theme of this chapter, therefore, is that marketing, as a management function, is also a risk management function which can be applied in any business organisation, as long as it is adapted to suit the nature of the market and the circumstances in which it is being called upon to operate.

Its emphasis on the need to meet the needs or requirements of the customer is particularly suitable and essential in the construction industry, where, in most cases, it is the failure on the part of the construction company to meet the needs or requirements of its clients that may lead to serious risk situations.

However, the construction firm must not be led to believe that marketing on its own can be a risk panacea.

How the Chapter is Developed

The chapter itself is divided into three sections.

The First Section

This is a brief review of the marketing concept. The main aim or objective of this section is to establish marketing as a management function as well as an insurance function.

The section takes cognisance of the problems associated with the definitions of marketing, and notes some of the possible reasons for these problems.

The section also discusses some of the current thinking and misgivings of some marketing authors, but this is countered by the conclusion of the section that, as a management function, marketing cannot be isolated from other management functions and be expected to produce the desired results.

The Second Section

This section attempts to establish the distinction between the consumer goods market and the industrial market.

Since, by definition, a large part of the construction industry is also part of the industrial market, this naturally forms our primary concern.

The nature of some of the main features of the industrial market is discussed. However, this is not intended to be a detailed treatment of industrial marketing. Rather, it is to create some basis for understanding some of the implicit and explicit similarities or links between the industrial market and the construction industry.

The Third Section

This section introduces industrial marketing as inter-organisational interactions which develop into relationships between the seller and the buyer organisations. However, this relationship is based on the ability of the seller to meet the requirements of the buyer.

However, since satisfying the needs of the industrial customer very often calls for a complete involvement of the whole management, a corporate marketing approach seems more effective, and is therefore suggested.

SECTION ONE
MARKETING AND ITS CONCEPT

Marketing and its Concept

Marketing is an essential part of the management function. Unfortunately, there is not a single definition of marketing that is acceptable to everyone because "no single one seems to encapsulate the whole essence of what marketing is"⁽⁴⁾, "marketing means different things to different people"⁽⁵⁾, and "it is not possible to compose a definition which, critically read, matches all cases"⁽⁶⁾.

This unfortunate situation has resulted from a number of reasons: in the first place, the origin and development of marketing, as we know it today, has, to some extent, made marketing a "collection of different disciplines"⁽⁷⁾. Consequently, definitions of marketing tend not only to be idiosyncratic, but, more so, to reflect the training background of the author, and the degree of his propensity to generalise, be practical or theoretical. Besides, there are also some differences in companies or businesses themselves in terms of their environment, their sizes or the limit of responsibilities which are allocated to the marketing department.

To some extent, the dynamic nature of the world in which marketing has to operate has also created some avenue for differing definitions of marketing.

Consequently, in an attempt to resolve this paradox, Baker⁽⁸⁾ observed that:

"Marketing is an enigma. At the same time, it is both simple and complex, straightforward and intricate; a philosophy or state of mind and a dynamic business function; it is new and it is as old as time itself. Cynically we might observe that it is exactly what you want it to be, and thereby everything or nothing."

Rodger⁽⁹⁾ maintains that it is necessary to distinguish between marketing as a concept and marketing as a group of activities carried out by business executives. He is of the view that marketing must begin as a concept which defines the purpose of marketing operations rather than as a description of the operations themselves.

The logic of his view is based on the argument that when a firm has embraced the marketing concept it can then organise the marketing function to suit its own environment or circumstances.

Obviously, what Rodger seems to be suggesting here is that, in spite of its universality, marketing, as a management function, can best be defined in the context of the environment in which the firm is operating.

Unfortunately, most definitions of marketing tend to be general, with implied assumption perhaps that it is left for the individual organisation to emphasise the variables which may be crucial for a successful marketing operation in its own environment or circumstances.

It seems, therefore, that although there are as many definitions of marketing as there are marketing authors, these definitions are, in essence, not really radically different from one another. It would appear, therefore, that the issue is not so much what has been left out in any particular definition of marketing as what the author wants or intends to emphasise.

Wills⁽¹⁰⁾ maintains that marketing is the interface between life as we wish to live it and the material goods and services which we create to sustain life. The efficiency with which marketing performs its task and with which production is

accomplished determines the material style of life a society can afford.

In the same way, Baker⁽¹¹⁾ points out that:

"If economies are comprised of people, and we are endeavouring to allocate scarce resources in order to maximise satisfaction, then it is the satisfaction of people which we are aiming at."

Obviously, if this satisfaction of people is to be achieved effectively, it would be unrealistic to assume that it could be done satisfactorily without first of all finding out satisfactory answers to the basic questions of what to produce, how to produce, where to produce, when to produce, and for whom to produce.

The order in which these basic questions follow would depend largely on the environment and the circumstances at the time of decision.

The same view seems to be echoed by Arndt⁽¹²⁾, who has argued that "marketing should be developed into a behavioural science concerned with the social instruments through which members of society receive their standard of living".

The interpretation of what constitutes "the social instruments" may be open to individual opinion. However, it must be remembered that "the satisfaction of people which we are aiming at" entails much more than just economic satisfaction; it embraces a provision for members of society to receive their standard of living.

In support of the same view, Hise et al⁽¹³⁾ felt that marketing should be discussed in terms of the ability of the

organisation to determine "the needs and desires of the market so that goods and services can be produced that satisfy these needs and desires".

Kotler's⁽¹⁴⁾ definition of marketing as "getting the right goods and services to the right people at the right place at the right time at the right price, with the right communication and promotion" has some implicit suggestion that marketing attempts to provide some logical answers to the basic questions of what, for whom, where, when and how to produce.

Marketing is considered in this respect as a technique which ensures the right decision by management as it affects the consumer. In other words, marketing becomes a "compass", so to speak, which guides the company in its activities and dealings with the customer.

Risley, also, has portrayed marketing as an aid to business in creating satisfied customers⁽¹⁵⁾. Generally, however, Risley appears to consider the primary function of marketing as customer satisfaction at a profit.

Thus, even on a wider basis he defines marketing as "the determination of guidance to production in reference to, and distribution of goods and services to create optimal satisfaction of customer wants, needs and desires, and, if successful, at a reasonable profit".

To consider marketing in terms of "the determination of guidance to production" is to acknowledge the fact that, basically, marketing deals or attempts to provide answers to the questions of what should be produced to satisfy the wants and needs of a given society.

However, it would be a mistake to look at marketing in isolation, for marketing is not just that: marketing is the "strike battalion" of a whole brigade - management, and unless those who profess marketing recognise it as such, its full benefits can hardly be realised.

Marketing, therefore, should be recognised basically as a management function which aims at anticipating, identifying, and satisfying the customers' needs, wants and desires in relation to the environment in which the firm is operating, in such a way that the organisation's objective(s) can be achieved⁽¹⁶⁾.

This would suggest that the relevance of marketing as an aid to management for efficient allocation of resources does not only rest in the business organisation knowing what it is doing⁽¹⁷⁾ in terms of decisions to be made, but more so in knowing why and where it is doing it.

Obviously, this embraces a careful consideration of its environment when a business organisation makes its marketing decision. Unfortunately, the issue of the environment and the context in which marketing is being defined has not yet been taken up seriously by marketing authors⁽¹⁸⁾.

However, there seems to be a growing realisation that marketing is a management function that must pervade the entire firm⁽¹⁹⁾. Stanton⁽²⁰⁾, for example, maintains that marketing, as any other management function, should be regarded as a "total system" of business activities designed to identify and provide want satisfying goods and services to the present and potential customers.

Rodger⁽²¹⁾ expressed the same view. He considered marketing as "the primary management function which organises and directs the

aggregate of business activities involved in converting customer purchasing power into effective demand for a specific product or service, and in moving the product or service to the final customer or user so as to achieve company set-profit or other objectives".

The Institute of Marketing⁽²²⁾ supported this view and, with some minor word changes, officially adopted it and thus defined marketing as:

"A management function which organises and directs all those business activities involved in assessing and converting customer purchasing power into effective demand for a specific product or service, and in moving the product or service to the final consumer or user so as to achieve the profit target or other objectives set by the company."

The key point in these definitions is that marketing cannot be isolated from other management functions if it is to fulfil its proper role in the overall performance of the company.

Thus, as a management function, marketing "includes all business activities that make possible the determination of what should be produced, and control that which is produced from its creation to ultimate consumption"⁽²³⁾.

"The determination of what should be produced", and the "control of that which is produced", point heavily to efficiency in resource allocation. Inclusion "of all business activities" within an organisation to achieve a stated objective calls for a planned integration of management functions. Accordingly, Bund and Carrol⁽²⁴⁾ have argued that an "integration of all management functions" seems a prerequisite for an effective marketing programme.

Management itself is not a static concept. It operates in a changing world. It has, therefore, become increasingly a dynamic process. Therefore, there are some authors who feel that, as a management function, marketing is also a dynamic process through which the organisation, in trying to achieve its own objectives, must first satisfy the needs and wants of its customers⁽²⁵⁾.

Accordingly, Laden⁽²⁶⁾ maintains that marketing should be considered as "a process of determining consumer demand", so that the demand can be effectively satisfied at a profit.

Bartels⁽²⁷⁾ expressed the same view. According to him, marketing should be viewed as a -

"process whereby society, to supply its consumption needs, evolves distribution systems composed of participants who, interacting under constraints - technical (economic) and ethical (social) - creates the transactions or flows which resolve market operations and result in exchange and consumption."

Bartels may have placed undue emphasis on "distribution" but his recognition of "participants" "interacting under constraints" seems an implicit suggestion that resources are scarce and therefore efficient allocation of these scarce resources is essential in order to satisfy effectively the needs, wants, and desires of the society.

The essence of management is efficiency in allocation of scarce resources. Management implies, among other things, planning and control. As a management function, marketing cannot be expected to play its useful role in the performance of the organisation without careful planning and control of the planned

programmes. In this regard, Kotler⁽²⁸⁾ maintains that marketing should be defined in terms of organisations'

"Analysis, planning, implementation and control of carefully formulated programmes, designed to bring about voluntary exchanges of values with target markets for the purpose of achieving organisational objectives."

This point is more succinctly put by McKitterick⁽²⁹⁾ when he asserted that:

"The principal task of the marketing function in a management concept is not so much to be skilful in making the customer do what suits the interests of the business as to be skilful in conceiving and then making the business do what suits the interests of the customer."

Admittedly, this is the essence of marketing. However, the apparent disagreement among marketing authors about which of the various variables should be emphasised has, unfortunately, led to a proliferation of definitions of marketing. This paradox has been noted by Baker⁽³⁰⁾, Kotler⁽³¹⁾, Crosier⁽³²⁾, Mason⁽³³⁾, McTavish⁽³⁴⁾, and others⁽³⁵⁾.

To some extent, this has also affected general agreement as to what the marketing concept itself should be. Recently, Buss^(35a) accused some marketing authors of "misusing the English language", and maintained that "what is widely known as the marketing concept is, by logic and by definition, a principle or a relationship between concepts".

Certainly, other writers have not taken the same line as Buss. Rather, there seems to be an increasing awareness among marketing

authors that, if marketing and its concept are to move with the changing world in which they have to operate, then both marketing as a management function and marketing as a concept must be defined in such a way that they do not restrict themselves only to the interests of the business.

Thus, there seems to be a spill over of consumerism to society as a whole, though not all marketing authors subscribe to this view.

In the past, it would seem sufficient to define the marketing concept in terms of -

"a management orientation that holds that the key to achieving organisational goals consists of the organisations determining the needs and wants of target markets and adapting itself to delivering the desired satisfactions more efficiently and effectively than its competitors."⁽³⁶⁾

or simply as -

"a customer needs and wants orientation backed by marketing effort aimed at generating customer satisfaction as the key to satisfying organisational goals."⁽³⁷⁾

However, there is a growing number of opinions that, as a concept, marketing should no longer be viewed only as a philosophy of business which states that the customer's wants or satisfaction is the economic and social justification for a firm's existence, and so all company activities must be devoted to finding out what the customers want and then satisfying those wants⁽³⁸⁾.

The "modern" marketing concept, they argue, should embrace much more, to include the preservation or enhancement of the customers' and society's wellbeing. Arndt⁽³⁹⁾, for example, argued that marketing should be developed into a social instrument which dictates to society how it should live.

Thus, the "extended" role of marketing is also seen by Kotler⁽⁴⁰⁾ in terms of "societal marketing concept", Feldman⁽⁴¹⁾ in terms of "societal adaptation", Dawson⁽⁴²⁾ in terms of "the human concept", Kollat et al⁽⁴³⁾ in terms of "an ecological concept of marketing", while Arthur and Schaefer⁽⁴⁴⁾ subscribed to a "total marketing concept"⁽⁴⁵⁾.

The various views about what the marketing concept should be in the present modern society are eloquently exemplified by Feber's⁽⁴⁶⁾ and Lavidge's⁽⁴⁷⁾ works on "the expanding role of marketing", and "the growing responsibilities of marketing", respectively.

The authors of these views may, no doubt, congratulate themselves for being "long-sighted", and, perhaps, providing a possible guard against any tendency on the part of the academics or business organisations to become myopic in their attitude towards what the marketing concept may actually demand.

However, it would seem that it is high time marketing authors realised the difference between normative concept and positive concept of marketing. In other words, there seems to be a confusion among marketing authors as to what the marketing concept really is, and what the marketing concept should be.

McTavish alluded to this when he observed that while -

"the academic is preoccupied with mathematical model

building, the marketing manager is left to find out whether what he sees as a persuasive theory has any practical utility."⁽⁴⁸⁾

Preservation or enhancement of the consumers' and the society's well-being is, no doubt, central to marketing or the marketing concept. However, in order to do this, the organisation must first be in existence. In other words, to survive in the long run, the organisation must first survive in the short run.

The collapse of Laker Airways, for example, has not yet been investigated, and it may seem premature to assign blame to any particular variable or variables. However, although there may be some powerful argument that the pricing policy of the company was merely a marketing strategy, there is also little doubt that it embraced the "societal concept of marketing", at least judging from the pronouncements of Laker himself⁽⁴⁹⁾.

If this is accepted, then it is questionable whether the loss of over two thousand jobs, the hardship created for the affected families, and the increase in the dole queue, are really long term interests of the company, the customer, or society.

It is this sort of situation that may have provided some avenues for some authors to caution the false belief that, even on its own, marketing is a panacea for all corporate ills.

Bett and Emery⁽⁵⁰⁾, for instance, have asserted that "evidence exists to support the questioning of the marketing concept". They even went further to argue that the birth of consumerism was not only an indication of the failure of the marketing concept, but also the "bankruptcy of what the business schools have been calling the marketing concept".

Wentz⁽⁵²⁾ expressed a related view. He observed that in their zeal to sell the importance and usefulness of the marketing concept, the academic -

"put the entire firm - if not the universe itself - into orbit around the marketing department."

Bennet and Cooper⁽⁵²⁾, while accepting that the intuitive logic of the marketing concept is compelling and difficult to refute, also observed that "strict adherence to the marketing concept has damaged American business", in the sense that it has shifted the emphasis from reality to selling psychological products.

"We spend billions more convincing the customer that the product is 'new' and 'improved', rather than spending the money in the lab to develop a significantly superior product."

No wonder then that sixty-one percent (61%) of the three hundred top United States Educational Administrators who were asked to define "marketing" saw it primarily as a "combination of selling, advertising and public relations". Another twenty-eight percent said it was only one of these activities⁽⁵³⁾.

Thus, eighty-nine percent (89%) of those involved saw marketing primarily as selling and/or advertising, and/or public relations.

Only a small percentage saw marketing as having something to do with the determination and satisfaction of customer needs. Again, it is clear that one cannot rule out the environmental factors in a definition of marketing⁽⁵⁴⁾.

However, if by "strict adherence to the marketing concept" the authors meant the spending of "billions more to convince the customer", as has been reflected in the views of eighty-nine percent of those educational administrators, then the authors may as well be reminded that "the aim of marketing is to make selling superfluous"⁽⁵⁵⁾.

Sachs and Benson⁽⁵⁶⁾ also expressed some doubt as to whether the business organisation can compete when it is adhering strictly to the tenet of the marketing concept.

They maintained that:

"Given our business environment, it is highly doubtful that a firm can compete vigorously, and, at the same time, adhere faithfully to the marketing concept."

Their argument is based on the fact that marketing or its concept "has come to mean different things to different people"⁽⁵⁷⁾. As such, diverse and often contradictory actions can be justified by the same precepts.

"Under such circumstances, the marketing concept can be either deliberately discarded or left to crumble under the weight of its irrelevancies."

However, it would appear that the reasons given by the authors for their contention contradict themselves: in the first place, if marketing or its concept meant different things to different people, as they stated, then it would seem natural that the firm could compete vigorously and still be faithful to the marketing concept in the way it understood it, and, on the basis of the same argument, its actions may be justified in their own right⁽⁵⁸⁾.

If this is accepted, then one might as well ask: what exactly is marketing as perceived by companies?

Is marketing or its concept, then, a deceptive mystic, a business witchcraft, or a dynamic prophecy for business survival which has long been simply misunderstood?

Whatever the answers to these questions may be, the answer to the last question is certainly a big 'Yes'.

Marketing is a dynamic management function requiring a total commitment of the entire firm to ensure its success. Its failure should be interpreted as a failure of the whole management in the company, since marketing is only part of the whole that is responsible for allocation of scarce resources.

People are quick in pointing the accusing finger at marketing when things go wrong in a company, without realising that they are, in fact, accusing themselves of being ignorant of the marketing concept.

Ames⁽⁵⁹⁾ has reported some cases where some of the business executives he had talked to were not happy with the marketing concept. One of the executives is quoted as saying that -

"I can't really say that the marketing concept has made much of a contribution so far, and I don't know what to do about it. Our sales and administrative costs are up because of staff additions and higher salaries in the marketing department, but we really don't operate any differently now than we did before we started talking about marketing."

In another situation, the President of a company is quoted to have complained that:

"Our marketing effort has been a total waste. All we've gained is an expensive marketing staff with hairbrained ideas about advertising and promotions. Most recently, we spent \$600,000 on an advertising campaign in the top journals, and our sales haven't increased at all. I am not even sure our customers read the magazines we've been pouring advertising money into."

The unfortunate picture which may have been painted by the above complaints against marketing seems to point to what Wilson⁽⁶⁰⁾ has described as "the first myth of marketing". This myth, according to Wilson, is the false belief by some organisations that, to appear oriented towards marketing, a company must have a marketing department charged with the task of marketing the company's offerings.

Consequently, most companies that complain against the ineffectiveness of marketing tend to be those in which the establishment of a marketing department tends to serve only as a signal to all other parts of the company that they can forget all about marketing.

"Thus, 10% of the firm has a marketing title, and a marketing function, while 90% can go comfortably back to being product oriented without any feelings of guilt at all."⁽⁶¹⁾

This falls short of what marketing demands. The establishment of marketing departments, no doubt, may be a change in the right direction, but, on its own, it is not enough and may

even lead to disastrous results. As Lear⁽⁶²⁾ observed, there is "NO EASY ROAD TO MARKETING ORIENTATION".

Thus, Ames⁽⁶³⁾ cautions that creating and supporting a marketing organisation, adopting new administrative mechanisms, and increasing one's marketing expenditures, important as they may be, are moves that, by themselves, do not guarantee marketing success:

"Unless there is also a change in attitude throughout the company, real results cannot be gained."

It seems, therefore, that once again we are reminded that marketing is a management function which we cannot divorce or isolate from other management functions in the business organisation and still expect it to achieve its intended results⁽⁶⁴⁾.

Therefore, it would seem that, in spite of the differing definitions and scepticism expressed from certain quarters about the usefulness of marketing, no one should be under any illusion that a business organisation can ignore the marketing concept or the interest of the customers, for that matter, and still expect to survive in a competitive market⁽⁶⁵⁾.

This fact has been succinctly expressed by James⁽⁶⁶⁾ when he counselled that -

"It must never be forgotten that marketing is a type of insurance function against the possibility of unprofitable investment. It helps to reduce or relieve anxiety on the part of owners of capital, and those who, through their work, are associated with that capital."

Similarly, Frances⁽⁶⁷⁾ in his "The attraction of marketing today and tomorrow" observed that the 1980s will present new challenges, and marketing remains the main weapon with which the company can fight these challenges for survival.

In this regard, therefore, marketing is not only a management function, but also a risk reduction function which should be present at the conception of our enterprise and should be there throughout the use of that enterprise.

Summary and Conclusion

To conclude this discussion, therefore, five main points seem to have emerged to form the summary of this section:

1. In spite of the differing definitions, it is becoming increasingly clear that marketing is a management function which recognises that the survival of the firm depends very much on its ability to sustain its customers through efficient allocation of its scarce resources. Therefore, marketing can also sensibly be regarded as a risk reduction function.
2. Recently, there have been some suggestions from certain quarters that the marketing concept should be extended to embrace more than just the interests of the firm.
3. However, both the marketing authors and business organisations must realise that the interests of the customers or society, vital as they are, should not be regarded as an end in themselves, but only as a means through which the company can achieve its objective(s).
4. It must also be remembered that, although marketing provides a guide or indication as to what, how, where, for whom, and when the firm should allocate its resources, on its own marketing cannot be a panacea for all corporate ills.
5. Marketing must therefore be defined in terms of the overall commitment of the management to achieve its set of objective(s).

Armed with this general outlook on marketing, we can now go on to consider the main segments of marketing, and what really differentiates them.

SECTION TWO
INDUSTRIAL MARKETING

Introduction

The main objective of this section is to distinguish, in general terms, the industrial market from the consumer market.

The section is, therefore, not primarily intended to provide a detailed treatment of every aspect of industrial marketing.

However, it is hoped that the subsequent discussion of the factors which distinguish the two markets will provide some background for the understanding of the construction industry within the industrial marketing context.

(i) The Industrial Market

Strictly speaking, there are certain areas of marketing which may fall neither into the industrial nor the consumer goods markets⁽⁷⁰⁾. Nevertheless, it is on the basis of these two segments that marketing is usually divided by marketing authors.

The division itself seems primarily a matter of implicit acceptance of the traditional economic theory of the firm that the main interest of a business organisation is basically economic⁽⁷¹⁾

(72) (73) (74) (75), and therefore all its actions must reflect this basic objective.

Accordingly, industrial marketing is viewed as being concerned with the marketing of goods and services to buyers who will use them to further their economic interest by producing other goods and services that are in demand.

Most marketing authors have supported this view^{(76) (77) (78)}
 (79) (80) (81) (82). The result is that the domain of consumer marketing has been limited to "the marketing of goods and services to ultimate consumers"^{(83) (84) (85) (86) (87)}.

One major conclusion which can be drawn from this differentiation, therefore, is that the distinction between the industrial market and the consumer market is primarily a matter of customers and the intended purpose of the purchase^{(88) (89) (90) (91)}.

This conclusion has some far reaching implications: in the first place, it implies that the nature of the product or service does not necessarily make it an industrial product. It must also be qualified by who is the buyer and the proposed intentions of the purchaser.

Secondly, it also implies that not all goods and services can be classified as either industrial or consumer. Some products, such as lawn tractors, sandpaper, typewriters, floor polish, automobiles, handtools, writing materials, and the like, fall into both categories⁽⁹²⁾.

Thirdly, it does not only imply that the definition of industrial marketing is derived from the definition of industrial goods and services, but also that the demand for industrial goods and services is a derived demand.

Interestingly, virtually all marketing authors, including Wilson⁽⁹³⁾, Webster⁽⁹⁴⁾, McTavish⁽⁹⁵⁾, Stanton⁽⁹⁶⁾, Corey⁽⁹⁷⁾, Fisher⁽⁹⁸⁾, Baker⁽⁹⁹⁾, Kollat et al⁽¹⁰⁰⁾, Dodge⁽¹⁰¹⁾, Stacey and Wilson⁽¹⁰²⁾, James⁽¹⁰³⁾, Chisnall⁽¹⁰⁴⁾, Alexander et al⁽¹⁰⁵⁾ and a host of others, agree on this⁽¹⁰⁶⁾ (107) (108).

Stanton, for example, has devised a hypothetical discussion between the industrial manufacturer and a buyer. Out of this discussion, Stanton has noted four related industrial marketing demand characteristics, some of which have great relevance to the construction industry market. These four related characteristics are:

1. derived demand;
2. demand is inelastic as a result of 1;
3. demand is widely fluctuating as a result of 1 and 2;
4. the market is knowledgeable and so buying in the market tends to be rational, reflecting professional skills of customer.

This inelasticity of demand which Stanton has attributed to the derived nature of demand in industrial marketing may seem rather a generalised statement on the whole industry basis. Certainly there may be some examples where the inelasticity does not seem to apply.

For example, it is possible for an individual producer of industrial goods and services to increase his sales by price reductions, though this is most likely to be the case in the short run. In any case, such examples may be the exception rather than the rule.

The degree of inelasticity itself tends to differ according to the nature of the product involved. In the case of component parts, for example, the inelasticity, in most cases, does not just depend on the derived demand factor, but also on two related factors - namely:

- a) the cost of the components relative to the total cost of the equipment, goods, or service; and
- b) the role of the component or part in the functioning of the equipment, goods or service.

Inelasticity of demand for industrial products is also attributed to the durability of some of the products, such as equipment or capital goods, which makes it possible for customers to postpone purchases and thus extend the useful life of the equipment.

In the case of raw materials, however, the inelasticity is more a result of the derived nature of demand. This particular characteristic of industrial products has affected many African countries whose economy tends to depend on raw materials(109).

(ii) Buying is Rational

The fourth "related demand characteristic" tends to confuse a lot of issues in marketing, particularly when it comes to marketing approach.

Available evidence suggests that one cannot really dismiss the contention that, on the whole, "industrial marketing is knowledgeable". In other words, industrial customers know a lot about the goods and services they may wish to buy. Therefore, they are most unlikely to make any irrational buying decisions.

No wonder, then, that most models of industrial buying behaviour depict, or at least give the impression that, the buying unit, be it an individual or a group of experts, as going through every detail of the intended purchase decision to ensure that the objectives for which the purchase is to be made are achieved⁽¹¹⁰⁾ (111) (112) (113) .

However, even if this is so, the fact still remains that, while it is impossible to expect a customer in the consumer goods market to be an expert on every item he buys, it would be equally naive and unfortunate to assume that the customer in the consumer goods market is ignorant of his needs.

At present, most of the studies on buying behaviour of organisations in industrial marketing can hardly claim to have provided empirical evidence and established conclusively that 'rational buying' is solely a function of the buyer's expert knowledge of the product to be purchased.

Kennedy⁽¹¹⁴⁾, for example, reviewed a large literature on buying behaviour of organisations in the industrial market. Most of the review seems to recognise the fact that the decision to buy is a complex process involving many variables, different stages, and different people at all levels with vastly different views⁽¹¹⁵⁾ .

As a result, the composition of the buying or decision making unit, and the influence of those who are directly and/or indirectly concerned with the buying process, are almost likely to change with stages⁽¹¹⁶⁾ , as Table One demonstrates.

Most marketing authors would admit the presence of other factors, such as the environment in which the organisation is operating, the structure and nature of the organisation itself, the

background of the individuals involved and the degree of freedom with which they can make decisions, and many other factors.

The recognition of these important factors by most literature on organisational buying behaviour in the industrial market seems a tacit admission that rational buying in the industrial market is not a function of one variable, but a number of complex and inter-related variables. The buyer's expert knowledge of the product is only one of these variables⁽¹¹⁷⁾.

(iii) Economic Factor

If we were to find a dominant variable or factor in the behaviour of industrial buyers, it would seem relevant to analyse carefully and bear in mind the definition of industrial goods and services. In this way it is obvious that, that factor would most likely be the economic factor upon which the whole survival of the business organisation may depend.

This seems to agree with what the economic theory of the firm believes is the sole reason for the existence of the firm. But, even here, the presence of other variables is an indication that one must tread with caution.

**TABLE ONE: Decision Making Unit:
Members Involved by Type of Purchase**

Purchasing Stages	New Task	Modified Rebuy	Straight Rebuy
Recognition of need to purchase	Top management; general management	Buyer	Stock control system
Determination of product characteristics	Technical personnel	As specified when new purchase	As specified
Description of product characteristics	Technical personnel	As specified	As specified
Search for suppliers	Technical personnel	Buyer	Approved suppliers
Assessing qualifications of suppliers	Technical personnel	Technical personnel and buyer	Approved suppliers
Acquisition of proposals	Technical personnel and buyer	Buyer	Purchasing staff
Evaluation of proposals	Technical personnel	Buyer	Purchasing staff
Selection of supplier	Technical personnel, general management and buyer	Buyer	Purchasing staff
Selection of order routine	Buyer	Buyer	Purchasing staff
Performance feedback and evaluation	Technical personnel and buyer	Buyer (informal) system (formal)	Buyer (informal) system (formal)

Source: Adapted from G T Brand, "The Industrial Buying Decision", 1972.
Used with the permission of The Institute of Marketing.

(iv) Complexity of Buying Process

There is little doubt that the buying process in the industrial market tends to be complex. But that complexity itself tends to depend not only on the nature, but also tends to reflect several factors. For instance, it reflects:

- 1) the influence of the formal organisation itself;
- 2) the large numbers of persons involved in the process;
- 3) the complex, technical and economic factors that must be considered;
- 4) the environment in which the firm operates;
- 5) the frequently large amount of money involved in the transaction.

However, the fact that these factors may be involved in the buying process or decision increases the need for some common measurable criterion upon which a general agreement can be reached.

Stacey and Wilson⁽¹¹⁸⁾ maintained that, in general, such criterion would be "efficiency, economy and maximisation of resources". This confirms the view held by Ralph et al⁽¹¹⁹⁾ that, unlike the ultimate consumer, "the industrial buyer is motivated by profit considerations and must be prepared to justify his purchases on the basis of measurable performance".

Again, there is obvious emphasis on the performance and the overall economic variable in business decisions.

If this point is accepted, then it is logical to assume that the industrial buyer would consider carefully the performance advantages (PA) and disadvantages (PD), the economic advantages (EA) and disadvantages (ED) of a purchase (P) before making a final decision.

We can then use the relevant part of Baker's model⁽¹²⁰⁾ to say that for the industrial buying unit to make a positive purchase decision $(EA+PA-ED-PD) > \text{Zero}$, that is $P = f((EA+PA) - (ED+PD)) > 0$ (f is defined as a function). Obviously this would seem an oversimplification of matters. This situation can therefore be true if, and only if, all other factors are held constant.

Generally, marketing authors are becoming aware that distinguishing the industrial market from the consumer market merely by features is a delicate exercise, since some of the features may not be all that unique to the industrial market after all. For instance, industrial buying as a process which may involve many people⁽¹²¹⁾ has already been noted. But this can hardly be described as unique to industrial marketing, in the sense that it is also common in the consumer goods market to find families that discuss and make their intended purchasing decisions together before the actual purchase decisions are executed.

It seems to me, therefore, that the difference does not lie so much in "the group process" as in the fact that it is most unlikely that such families will have "formalised evaluation and decision procedures" similar to those found in the industrial organisations.

(v) Scale of Purchasing

Some marketing authors^{(122) (123) (124)} maintain that the scale of purchasing in the industrial market is greater than in the consumer market. This may be interpreted in either or both of two ways:

- 1) the greater scale of purchasing is in terms of money value;
- 2) the greater scale of purchasing is in terms of volume or size;

There are some cases where 1 is a product of 2, but in most cases there may be no linear relationship between 1 and 2 in terms of 1 resulting from 2.

In general, therefore, this particular feature of industrial marketing seems to refer primarily to the greater scale of purchasing in absolute money terms.

However, the matter becomes a bit complicated when the unit cost of production is introduced. It has been pointed out by some authors⁽¹²⁵⁾ that, for some industrial purchases, the relative size of the product to the cost of that product reverses the argument of greater scale of purchasing in money terms in favour of the consumer goods market.

For example, the price of a given piece of heavy equipment is obviously greater than that of say a shirt. However, if the volume of each of them is taken into consideration, then it is likely that, in relative terms, the shirt will be more expensive than the equipment.

It would seem, therefore, that the uniqueness of this particular feature of industrial marketing is valid in absolute terms, but less so in relative terms.

(vi) Small Number of Buyers

It is also held that the total number of buyers in the industrial market is smaller than in the consumer market^{(126) (127) (128) (129) (130)}. This is also typical of the construction industry market.

However, some marketing authors⁽¹³¹⁾ have pointed out that this may depend very much on the nature of the product. For instance, the market for office supplies is certainly large and dispersed.

On the other hand, the concentration of buying power in the hands of a few retail multiples suggests that this particular feature cannot be restricted or said to be unique to the industrial market without some kind of qualification.

(vii) Concentrated Nature of the Market

Related to this is the concentrated nature of the industrial markets. Most marketing authors^{(132) (133) (134)} seem to agree that, generally, the industrial market is characterised by three types of concentrations.

Wilson⁽¹³⁵⁾, for example, maintained that these concentrations can be reasonably distinguished by geographic, industrial, and purchasing concentrations which seem to be closely related and somehow interdependent.

Geographic concentration tends to result from backward and forward linkages which may eventually become a "pulling zone". In Britain, the metalworking industry around Birmingham is easily cited as an example; while, in Nigeria, the high concentration of industries in Ikeja, Trans-Amadi, and particularly the concentration of textile industries in Kaduna, are other examples.

Geographic concentrations tend to be of particular interest to economists, particularly in their argument about factors which affect location of industries.

Industrial concentration, on the other hand, tends to result from the nature of the goods and services marketed⁽¹³⁶⁾. Because of its nature, a particular product can be used more effectively only in certain areas. This, in turn, tends to exclude other customers and may, thus, lead to concentration of buyers.

The Military or Post Office equipment markets are easily cited as examples, though rather extreme.

As a matter of fact, it would seem that it is because of the concentration of buyers and the relatively small number of buyers that some authors⁽¹³⁷⁾ maintain that, in industrial marketing, the market is easily discernible.

It is also possible that the relatively smaller number of buyers may have contributed to the closer buyer-seller relationship which is said to be very vital in industrial marketing.

The logic of this point is based on the assumption that, since the firm has a relatively smaller number of buyers, it would be easier for it to develop buyer-seller relationships.

(viii) Buyer-Seller Interdependence

However, most marketing authors seem to have played down this point. Rather, they maintain that, although buyer-seller interdependence plays a greater role in the industrial market than in the consumer market, this is mostly as a result of the fact that, in absolute terms, most industrial products are technically more complex than consumer goods.

- 1) They point out that in industrial marketing the product is not a physical entity per se. Rather the product is an array of economic, technical and personal relationships between buyer and seller.
- 2) Because - and this is especially so for products used in the customer's operations - the buyer may become critically dependent on the supplier for an assured supply of raw materials, components or subassemblies, maintenance and repair parts, and skilled repair service for capital

equipment, and the like, the 'sale' or the actual transaction becomes only one point on the time continuum⁽¹³⁸⁾.

However, if this interdependency were merely a function of the technical complexity of industrial products, then one would argue that there are also some consumer products that are technically complex. For instance, most electronics gadgets are complex, and it is doubtful whether a consumer who buys a good video tape recorder, or a pocket calculator, would find it less technically complex than an electrical engineer would find a transformer which he may have recommended and/or bought for his company.

Besides, there are some cases, such as in industrial raw materials or office supplies, where the greater technical complexity, as a feature of industrial products, may not apply.

In any case, most marketing authors would agree to this, only to point out that such cases are the exception rather than the rule.

The interdependence between the buyer and the seller in the industrial market has some bearing on the channels of distribution of most heavy equipment, in the sense that it may well be one of the reasons why, as Rodger⁽¹³⁹⁾ noted, "channels of distribution for industrial goods tend to be shorter than those for consumer goods".

From the discussion so far, it can be seen that what has been done in this section is not so much a detailed enumeration of every characteristic of industrial marketing, but rather it is a discussion of the features which have been adjudged to have some degree of relevance to the chapters on the construction industry, and the implications which these features create for a marketing approach in the industrial market.

Summary and Conclusion

This section has attempted to show that the traditional economic theory of the firm seems to have influenced the basis on which marketing is divided into consumer and industrial marketing.

Consequently, the buying activities of the industrial organisation are seen mainly as attempts to achieve its main objective, hence the derived nature of demand in the industrial market.

The industrial market itself is said to have relatively fewer buyers than the consumer market. While this is generally the case, one must also take notice of the similar situation in the consumer market, where there is also a concentration of buying power in the hands of a few retail multiples.

The nature of some industrial products calls for a greater need for after-sales service, which may lead to buyer-seller interdependence.

Perhaps this closer buyer-seller relationship has contributed to the comparatively shorter channels of distribution in industrial marketing.

Obviously these features have some implication on the marketing approach. Our understanding of them may, therefore, help us to understand why, although basically similar to consumer marketing, the marketing approach in the industrial market, or even the construction market for that matter, calls for a greater need to understand and satisfy the customers' requirements.

SECTION THREE
MARKETING APPROACH

The theme of this section is that marketing in the industrial market involves development of buyer-seller relationships. However, since buying in the industrial market is, in most cases, for the purpose of further production, the life, so to speak, of these buyer-seller relationships depends on the buyer being satisfied with the relationships.

Therefore, the need to meet the buyer's requirements is paramount and this requires a corporate rather than departmental marketing approach.

At the same time, Ames noted that this would require a clear understanding of the economics of the customer's operation, the structure of the industry in which he operates, and how he plans his marketing strategies against his competitors.

However, for the marketing firm to be able to do this effectively, there must be a continuous interaction between the seller and the buyer. In the process, relationships are established.

Thus, it seems that what happens in industrial marketing is not just an inter-organisational transaction, but also a development and/or establishment of buyer-seller relationships.

Hakansson et al⁽¹⁴⁴⁾, for example, stressed the importance of this relationship by describing industrial marketing as -

"A matter of building up and handling complex relations with a limited number of customers."

Two important points emerge from this: the first is that, clearly, the seller organisation cannot expect to develop enough capacity to successfully serve every industrial organisation. It must therefore limit itself to areas where it can offer the best service.

The second point is that the "limited number of customers" suggests that, except in some cases such as commodity-raw material, this is a buyers' market.

All this suggests that the relationship which may have been developed is not permanent in the sense that it lasts only as long as the buyer is satisfied with it, though the seller too may break off the relationship.

Thus, there is an added need for the seller to be able to meet not only the present requirements of the buyer, but also his future needs.

Bonoma⁽¹⁴⁵⁾ reiterated this point by observing that -

"In most industries, the bulk of a company's business comes from a small minority of its customers. Retaining these key accounts is getting increasingly difficult as buyers constantly look not only for the best deal but also for the vendor that best understands them and their needs."

(i) Corporate Marketing Strategy

It is, however, becoming increasingly clear that the needs of the industrial customer cannot be met by the marketing department alone. This is because the problems or needs of the customer often require solutions that call for the complete involvement of the management.

Therefore, although there may be some exceptions, in general a corporate marketing strategy is needed to meet the requirements of the industrial customer.

This is exemplified in Webster's⁽¹⁴⁶⁾ observation that -

"In a very real sense, industrial marketing calls for, and creates, conditions leading toward a more complete application of the marketing concept than consumer marketing."

His observation is based on the fact that, by its very nature, industrial marketing requires that all parts of the business organisation be customer oriented, and that all marketing decision making be based on a complete and accurate understanding of the needs of the customer.

James⁽¹⁴⁷⁾ dealt at length with this point. Primarily, he appears to be arguing a case for marketing research. However, he noted that there are characteristics of the industrial market which perhaps make it an even more fertile field for the marketer thinking in terms of long term profit maximisation.

His strongest expressed support seems to be where he stated that -

"The structure of the industrial market makes it a supreme example of the maximum need for customer orientation which, in turn, is a function of the importance of individual customers to the profitable conduct of the business."

This, of course, does not suggest that in the consumer market, the customer will buy anything, whether it satisfies his needs or not. However, the fact still remains that most industrial

manufacturers or buyers have their own standards, or economic and technical requirements, which they would very much want to maintain.

Consequently, such companies may go to the extent of supplying all the required details to the potential suppliers. As in the construction market, the ability to meet these existing and potential requirements could become a powerful factor in maintaining and acquiring customers.

This is of crucial importance in a market where the number of buyers tends to be generally small, but often with large buying capacity in money terms.

Recently, British Leyland lost one of its largest customers, J C Bamford. The main reason was that the strike action taken by workers of British Leyland at the Bathgate Plant threatened the steady supply of Bathgate Plant engines, which JCB had been using for its excavators for the past fifteen years⁽¹⁴⁸⁾.

The strike did not only make British Leyland to be regarded by JCB as an unreliable supplier, but, even more serious, it also indirectly threatened the very dominant share of the excavator market which JCB has maintained.

To prevent this threat to the maintenance of its dominant market share, therefore, JCB had to switch to Perkins engines.

The Scotsman writes:

"JCB switched from Ford 15 years ago for exactly the same reason they are preparing to change from Leyland - they need reliability of supply."⁽¹⁴⁹⁾

Commenting on the same issue, Mr Johnston, one of JCB's executives, explained his company's action by saying that:

"JCB have taken Bathgate engines for the past 15 years, and our only objective is to obtain continuity of supply, so that we can maintain this long association. But it must protect the interests of the 1400 employees at Rochester and its hard-won dominant market around the world."⁽¹⁵⁰⁾

Thus, as far as JCB is concerned, reliability of supply, which ensures the security of both its market share and the jobs of its workers, becomes a determining factor for selecting and maintaining their suppliers.

JCB's case may well present only a tip of an iceberg in the thinking and behaviour of most industrial customers. As a matter of fact, the company's action, the explanation given for the action, and the attendant implications of the action, seem to point strongly to the earlier observations made by Webster⁽¹⁵¹⁾ and James⁽¹⁵²⁾, and particularly the assertion made by Ames⁽¹⁵³⁾ that,

"Marketing in the industrial world is much more a general management responsibility than it is in the consumer field."

Ames based his assertion on the fact that, in a consumer goods company, major changes in the marketing strategy can be made and carried out within the department through changes in emphasis on the marketing mix.

In an industrial company, however, changes in marketing strategy are more likely to involve capital commitments for new equipment, or shifts in manufacturing approaches, any of which have some wide implications on the company, and cannot, therefore, be

confined to the marketing department.

For instance, there is no doubt that the recent switchover of JCB from British Leyland to Perkins engines for JCB excavators affected all the departments in the company.

It was much more than just buying other engines for the excavators. It means enormous problems in stocking worldwide dealers with a new range of spares, new tools, new technical pamphlets and retraining.

Within a month after the decision had been made, £50,000, with a possible increase to £250,000, was spent in plant alterations and new equipment to fit replacement engines to their products⁽¹⁵⁴⁾.

In addition, the company required a strong sales team to convince its worldwide customers that the new engines did not adversely affect the quality, efficiency, or performance of the equipment.

Thus, what could be interpreted primarily as a decision to avoid "late delivery to customers" became a commitment to every department of the company, and, thus, became a full corporate decision and commitment.

One major thing must be made clear here: the contexts in which JCB has been used twice as an example are not the same, though the case remains the same.

In the first context, JCB has been used to exemplify the nature of industrial customers, the need to meet their requirements in terms of time and product performance, and the relative importance they attach to buyer-seller long-term relationships.

The influence of the derived nature of demand for industrial products was also evident.

In the second context, JCB has been used as a manufacturer, anxious to maintain its hard-won market share in a highly competitive market.

It sees making the product available to its worldwide customers at all times as an important part of its marketing strategy to maintain its share of the market.

However, the company is aware that the marketing department cannot be left alone successfully to implement the strategy. Hence the overall corporate commitment.

One major conclusion can therefore be drawn from this apparent high degree of functional interdependence and a closer relationship to overall corporate strategy.

That conclusion is that, for an industrial marketing strategy to be effective, it must not just end at planning, but must also be conceived and seen as a corporate strategy, and not as a strategy which is being imposed on the management by the marketing department for its implementation.

Conclusion

Three main points must be emphasised as the conclusion.

- 1) The first main point is that the development or establishment of buyer-seller relationships forms the main basis for marketing effort in the industrial market.
- 2) The second point is that industrial marketing provides problems whose solutions require a complete corporate commitment. In this regard, the marketing concept seems even more inviting and appropriate for industrial organisations.
- 3) However, because of its relatively high degree of functional interdependence and closer relationship to overall corporate strategy, a marketing strategy, which is conceived and accepted as an overall management approach, seems more promising than that which may be imposed on the management by the marketing department only for its implementation.

It is therefore hoped that this chapter has provided some basis for the understanding of the need for a total corporate approach to marketing decisions.

It is with this in mind that the risk problems in the construction industry are approached.

REFERENCES

1. Carlson, S, International Finance Decision, North-Holland Publishing Company, Amsterdam, 1969, p32-33.
2. Druker, P F, The Practice of Management, Pan Books, 1968.
3. Woollett, J, Why are there so many failures in construction?, Building Technology and Management, Nov 1979, p39-40.
See also:
Shuler, J B, Business Failures in Construction, Journal of Construction Division, Proceedings of ASCE, Sept 1967, p73-89.
4. Crosier, K, What exactly is marketing?, Quarterly Review of Marketing, Winter 1975, p21-25.
5. Kotler, P, Principles of Marketing, Prentice-Hall, NJ, 1980, p4.
6. Ian MacLean (ed), Handbook of Industrial Marketing and Research, Kluwer-Harrap Handbooks, London, 1976.
7. Stanton, W J, Fundamentals of Marketing, (5th ed), McGraw-Hill Book Co, New York, 1978, p3-18.
See also:
Hill, R W, Marketing Technological Products to Industry, Pergamon Press, Oxford, 1973, p22-23.
Rodger, L W, "Marketing in a Competitive Economy", Associated Business Programmes, London, 1979, p21.
Bartels, R, "The General Theory of Marketing", Journal of Marketing, Vol 32, (January 1968), p29-33.
8. Baker, M J, Marketing: An Introductory Text, 3rd ed, 1981, The Macmillan Press Ltd, London, 1981.
9. Rodger, L W, Marketing in a Competitive Economy, Ibid.
10. Wills, G S C, Contemporary Marketing, Pitman Publishing Co, London, 1971.
11. Baker, M J, Marketing: An Introductory Text, Ibid, p8.
12. Arndt, J, "The proper scope and content of marketing", Management Decision, Vol 6, No 6, p306-320.
13. Hise, T R, et al, Basic Marketing: Concepts and Decisions, Winthrop Publishers, Cambridge, Mass, 1979.
14. Kotler, P, Principles of Marketing, Ibid, p9.

15. Risley, G, Modern Industrial Marketing, McGraw-Hill Book Co, NY, 1972, p10.
16. Cravens, W D, Marketing Positioning Strategy, Business Horizons, Vol 18, Dec 1975, p53-64.
17. McKitterick, J B, What is the Marketing Management Concept?, Annual Editions: Readings in Marketing, 1973/74, p25, The Lushkin Publishing Group Inc, Shrill Dock.
18. Baker, M J (1981), op cit, pxxiv. See also ref 53.
19. Crosier, K, What Exactly is Marketing?, Ibid, p21.
See also:
Keith, R J, "The Marketing Revolution", Journal of Marketing, January 1960.
20. Stanton, W J, Fundamentals of Marketing, Ibid, p5.
21. Rodger, L W (1979), op cit, p47.
22. Institute of Marketing, "Construction Industry Group", Marketing in the Construction Industry, Series 1, 1970-71.
23. Risley, G (1972), op cit, p11.
24. Bund and Carrol.
25. Risley, G, op cit, p10-11.
See also:
Drucker, P F, Managing for Results, Heinemann, London, 1964, p87-88.
26. Laden
27. Also see some of the various definitions given in - Crosier, K, "What exactly is marketing?", op cit.
28. Kotler, P, Marketing for Non-Profit Organisations, Prentice-Hall, NJ, 1975, p5.
29. McKitterick, J B, What is the marketing management concept?, op cit.
30. Baker, M J, op cit, p3; 376.
31. Kotler, P, Principles of Marketing, Chapter One, op cit.
32. Crosier, K, Ibid, p21.
33. Mason, J I, "What brand of marketing should we market? The Search for Definitions", The Quarterly Review of Marketing,

Winter 1980/81, p9-18.

34. McTavish, R and Maitland, A, Industrial Marketing, Macmillan Press Ltd, 1980, p2.
35. Risley, G, Modern Industrial Marketing (1972), op cit, p10.
Maclean, Ian (ed), Handbook of Industrial Marketing and Research, (1976), op cit, p101-(1)
- 35a. Buss, T, "Is the marketing concept really another myth?", Industrial Marketing and Advertising, Summer, 1976, p64-69.
36. Kotler, P, Principles of Marketing, op cit, p22.
37. Kotler, P, Principles of Marketing, op cit, p23.
38. Stanton, W J, Fundamentals of Marketing, op cit, p10.
Also see the argument advanced, and the various authors who have written on this new development, on p15.
39. Arndt, J, "The proper scope and content of marketing", Ibid.
40. Kotler, P, Marketing Management: Analysis, Planning and Control, (2nd ed), Englewood Cliffs, NJ, Prentice Hall, 1972, p26.
See also the following:
Kotler, P and Levy, S J, "Broadening the Concept of Marketing", Journal of Marketing, January 1969, p10-15.
"A New Form of Marketing Myopia", Journal of Marketing, July 1969, p57.
and Zaltman, G, "Social Marketing: An Approach to Planned Social Change", Journal of Marketing, July 1971, p11.
Luck, D J, "Broadening the Concept of Marketing - Too Far!", Journal of Marketing, July 1969, p53-55.
41. Feldman, L P, "Societal Adaptation", Journal of Marketing, July 1971, p55.
42. Dawson, L M, "The Human Concept: New Philosophy for Business", Business Horizons, Dec 1969, p29-38.
43. Kollat, D T, et al, Strategic Marketing, Holt, Rinehart and Winston, NY, 1972, p32.
44. Arthur, D L and Schaefer, N V, "The Future Role of Marketing", Quoted by O'Leary, R, in European Journal of Marketing.
45. Also see the argument presented by O'Leary, R and Iredale, I, "The Marketing Concept: Quo Vadis?", European Journal of Marketing, 10/3, 1976, p146.
46. Ferbor, R, "The Expanding Role of Marketing in the 1970s",

- Journal of Marketing, January 1970, p29-30.
47. Lavidge, R J, "The Growing Responsibilities of Marketing", Journal of Marketing, January 1970, p25-28.
Also see the reviewed article by Francis, L, European Journal of Marketing, 14, 9, 19, p20.
 48. McTavish, R and Maitland, A, Industrial Marketing, Macmillan Press Ltd, 1980, p3.
 49. See McCarthy Information (Ltd), on Laker, F, for the past few years.
 50. Bell, M L and Emory, C W, "The Faltering Marketing Concept", Journal of Marketing, Oct 1971, p37-42.
 51. Wentz, W B, Marketing, West Publishing Company, Minnesota, 1979, p15.
 52. Bennett, R C and Cooper, G R, "The Misuse of Marketing: An American Tragedy", Business Horizons, Vol 24, No 6, Nov-Dec 1981, p51-60.
 53. Kotler, P (1980), op cit, p4.
 54. Goodman, C S, "Whither the marketing system in low income areas?", quoted in Kotler, P and Cox, K K (ed) Readings in Marketing Management, Prentice Hall Inc, Englewood, N J, 1972, p414-430.
See also:
Kollat et al (1972), Strategic Marketing, op cit, p32, and
Baker, M J (1981), op cit, pxxiv.
 55. Drucker, F P, Management: Tasks, Responsibilities and Practices, Harper and Row, pub, New York, 1973, p64-65.
 56. Sachs, W S and Benson, G "Is it time to discard the marketing concept?", Business Horizons, Vol 21, No 4, August 1978, p68-74.
 57. Sachs, W S and Benson, G (1978), op cit, p69.
 58. McNamara, C P, "The Present Status of the Marketing Concept", Journal of Marketing, Vol 36, (Jan, 1972). This point is summed up in the abstract on p50.
 59. Ames, B C, "Trappings vs substance in industrial marketing", Harvard Business Review, July-August 1970, p93.
 60. Wilson, A, "Six myths of marketing", Management Today, August 1979. Note especially p63.

61. Wilson, A (1979), *Ibid*, p63.
62. Lear, R W, "No easy road to market orientation", Harvard Business Review, Sept-Oct 1963, p53-60.
63. Ames, A (1970), *Ibid*, p93.
64. Pearce, E, Marketing and Higher Management, George Allen and Unwin Ltd, London, 1970, p9.
Alexander, R S, Cross, J S, and Cunningham, R M, Industrial Marketing, Irwin (Homewood) 1961.
65. Levitt, T, Marketing Myopia, Harvard Business Review, Vol 38, (July-Aug 1960), p56.
66. James, B G S, Integrated Marketing, Batsford Ltd, London, 1967.
67. Frances, L, The Attraction of Marketing Today and Tomorrow, European Journal of Marketing, Vol 49, No 9, p20.
68. Alexander, R S, Cross, J S and Cunningham, R M, Industrial Marketing, Irwin, Homewood, Illinois, 1961, p3.
69. Stanton, W J (1978), *op cit*, p151.
70. See for example: Willsmer, R L, The Basic Arts of Marketing, Business Books Ltd, London, 1976, p19.
71. Morris, D (ed), The Economic System in the UK, Oxford University Press, 1979, Chapter 3.
72. Needham, D, Economic Analysis and Industrial Structure, Holt and Rinehart, 1969.
73. Coppock, J D, Economics of the Business Firm, McGraw Hill Book Co, NY, 1959, p3-4.
74. Hirsleifer, J, Price Theory and Applications, Prentice-Hall, NJ, 1976, Chapter 9.
75. Stoner, A W and Hague, D, A Textbook of Economic Theory, Longmans, London, 1964, Chapter V.
76. Webster, F E (Jr), Industrial Marketing Strategy, John Wiley, 1979, Chapter One.
77. Enis, B M, Marketing Principles, (3rd ed), Good Year Publishing Co Inc, Santa Monica, Calif, 1980, Chapters 5 and 6.
78. Bell, M L, Marketing; Concepts and Strategy, (3rd ed), Houghton Mifflin Co, Boston, 1979, p201-203.
79. Kurtz, D L and Boon L, Marketing, The Dryden Press, NY, 1981, p 136.

80. Wentz, W B, Marketing, West Publishing Co, NY, 1979, p197.
81. McCarthy, J E, Basic Marketing, (6th ed), Richard D Irwin Inc, Illinois, 1978, p176.
82. Fulmer, R M, The New Marketing, MacMillan Publishing Co, 1976, Chapter 9.
83. Risley, G, Modern Industrial Marketing, op cit, p13.
84. Lipson, H A and Darling, J R, Marketing Fundamentals: Text and Cases, John Wiley Inc, NY, 1974, p226.
85. Corey, E R, Industrial Marketing: Cases and Concepts, Prentice Hall Inc, NJ, 1976, p1.
86. McCarthy, J E (1978), op cit, p156-157.
87. Willsmer, R L (1976), op cit, p16; 36.
88. Fisher, L, Industrial Marketing, Business Books Ltd, London, 1979, p8.
89. McTavish, R and Maitland, A (1980), op cit, p5-6.
90. Dodge, H R (1970), op cit, p21.
91. Alexander, R S, et al (1961), op cit, p3.
92. Corey, R E (1976), op cit, p1.
93. Wilson, A (1979), op cit, p3.
94. Webster, F E, "Management Science in Industrial Marketing", Journal of Marketing, January 1978, p21-27.
95. McTavish, R and Maitland, A (1980), op cit, p24.
96. Stanton, W J (1978), op cit, p150.
97. Corey, E R (1976), op cit, Chapter 1.
98. Fisher, L (1976), op cit, p9.
99. Baker, M J (1981), op cit, p144.
100. Kollat, et al (1972), op cit, p141.
101. Dodge, H R (1970), op cit, p21.
102. Stacey, N A H, and Wilson, A, Industrial Marketing Research -

- Management and Technique, Hutchinson, London, 1963, p73.
103. James, B G S, "The Industrial Market - Practice, Motives and their Marketing Implications", British Journal of Marketing, Spring, 1967, p25.
 104. Chisnall, P M, Effective Industrial Marketing, Longman, London, 1977, p5-7.
 105. Alexander, R S, et al, Industrial Marketing, Richard D Irwin Inc, Illinois, 1967, Chapter 2.
 106. Kurtz, D L and Boon, L, Marketing, The Dryden Press, NY, 1981, p136.
 107. Enis, B M (1980), op cit, Chapter 6.
 108. Fulmor, R M (1976), op cit, Chapter 9.
 109. Zambia depends entirely on Copper, Niger on Uranium, Nigeria on oil and tin; before on cocoa and ground nut, Ghana depended entirely on cocoa.
The effect of derived demand for their products or raw materials has been badly felt in these countries.
 110. Webster, F E and Wind, Y, Organisational Buying Behaviour, Englewood Cliffs, NJ, Prentice-Hall, 1972.
 111. _____ "A General Model of Organisational Buying Behaviour", Journal of Marketing, Vol 36, No 2, April 1972, p12-19.
 112. Jagdish N Sheth, A model of industrial buyer behaviour, Journal of Marketing, Vol 37, 1973, p50-56.
 113. See also Britt, S H and Boyd, H W, Marketing Management and Administrative Action, McGraw Hill, NY, 1978, p135-144.
 114. Kennedy, A M, "Buyer Behaviour - Review and Discussion", Working Papers, Department of Marketing, 1981, University of Strathclyde, Glasgow.
 115. Weigand, R E, "Why Studying the Purchasing Agent is Not Enough", Journal of Marketing, Vol 32, January 1968.
 116. Spekman, R E and Stern, L W, Environmental Uncertainty and Buying Group Structure: An Empirical Investigation", Journal of Marketing, Vol 43, Spring 1978, p54-64.
 117. "How British Industry Buys", A Joint Industrial Market Research Ltd, and the Institute of Marketing Survey, 1965.
 118. Stacey, N A H, and Wilson, A, op cit, p71.

119. Ralph, S A, et al, Industrial Marketing, Richard D Irwin, Homewood, 1967, p35.
120. Baker, M J (1981), op cit, p99-100.
121. Dodge, H R (1970), op cit, p35.
122. Webster, F E (1978), Ibid.
123. Baker, M J (1981), op cit, p134.
124. Stanton, W J (1978), op cit, p154.
- See for instance, the argument in -
125. Baker, M J (1981), Ibid.
126. Fulman, R M (1978), Ibid.
Also see especially -
Stacey, N A H and Wilson, A (1963), op cit, p74.
127. Enis, B M (1980), Ibid.
128. Fisher, L (1976), op cit, p17.
129. Hakansson, H and Ostberg, C, "Industrial Marketing: an organisational problem", 4th Annual Workshop on Research in Marketing, The Marketing Institute, 1975.
130. Alexander, R S, et al (1967), Ibid.
131. Corey, E R (1978), Chapter One.
Baker, M J (1981), op cit, p133-134.
132. Fisher, L (1976), op cit, p16-17.
133. McTavish, R and Maitland, A (1980), op cit p12-14.
Alexander, R S et al (1976), op cit, p54-57.
134. Dodge, H R (1970), op cit, p29-31.
135. Wilson, A, The Assessment of Industrial Markets, Hutchinson, 1968, Chapter 1.
136. Stacey, N A H and Wilson, A (1963), op cit, p74-75.
137. McTavish, R and Maitland, A (1980), op cit, p12-14.
138. Webster, F E, Industrial Marketing Strategy, op cit, p17.
139. Rodger, L W (1979), op cit, p63.
140. See for example -

- Kotler, P, A Generic Concept of Marketing, Journal of Marketing, Vol 36, April 1972, p46-47.
141. Levitt, T, Marketing Myopia, Harvard Business Review, Vol 38, July-Aug 1960, p56.
142. Francis, L, The Attraction of Marketing; Today and Tomorrow, European Journal of Marketing, Vol 49, No 9, p20.
143. Ames, B C (1970), op cit, p94.
144. Hakansson, H et al, "Industrial Marketing as an Organisational Problem", European Journal of Marketing, Vol 13, No 3, 1979.
- Hakansson, H (Editor), International Marketing and Purchasing of Industrial Goods - An Interaction Approach, John Wiley and Sons, 1982.
145. Bonoma, V T, "Major Sales: Who really does the buying?", Harvard Business Review, May-June 1982, p112.
146. Webster, F E (1978), op cit, p22.
147. James, B G S, The Industrial Market, Practice, Motives and their Marketing Implications, British Journal of Marketing, Spring 1967, p25.
148. McCarthy Information Ltd, 19/2/82.
The Construction News, Feb 18th 1982, p4.
149. The Scotsman, May 2nd 1982.
Financial Times, Feb 12th and 13th 1982, March 4th 1982.
150. McCarthy Information Ltd, issued 19/2/82, p031-1450.
151. Webster, F E (1978), op cit, p22-24.
152. James, B G S (1967), Ibid.
153. Ames, B C (1970), op cit, p95.
154. McCarthy Information Ltd (Check, J C B, issued 19/2/82).

CHAPTER FOUR

The Construction Industry

The Construction Industry

Introduction

The previous chapter was intended to provide a background for understanding of the construction industry in the industrial marketing context, particularly the buyer-seller relationships. It is therefore hoped that the present chapter will be read with that hindsight.

The theme of the chapter.

The main concern of this Chapter is the Construction industry. Its primary objective is to present in simple terms, the nature of the construction industry as far as it is necessary and relevant, and to show the relevance and usefulness of marketing in the construction industry.

How the chapter is developed.

The chapter has been divided into two Sections, Section One and Section Two.

Section One.

This Section concentrates on the nature of the construction industry. It examines the various definitions of the construction industry.

However, it notes that because of the practical difficulty involved when an attempt is made to separate the building industry from the civil engineering industry, it is more realistic to use

"CONSTRUCTION INDUSTRY"

to mean both building and civil engineering works.

Nevertheless, account is also taken of the fact that the construction industry can also be defined both in terms of what the industry produces, and the people or firms who participate in the industry.

Accordingly, the section also provides a general discussion on the participants in the industry. This is also intended, not only to show the inter-dependence of the participants on one another, but also to show the complexity of the industry and its relationships to other industries.

The nature of the construction industry is also manifested by the general features of its products, defined as completed construction projects.

The interesting thing to note about these features is that, not only have some of them made "distribution of product", in the ordinary sense, almost irrelevant in the marketing of construction products, but also some have led to "fragmentation" of the 'production process' for most construction products.

Consequently, there have been some calls and suggestions by some authors who are concerned that, although the 'FRAGMENTED' production process is the result of some historical development, it should not be allowed to affect the interest of the customer. The supremacy of the customer is therefore recognised in clear terms.

What this section has done therefore, is to present the general nature of the construction industry in its three facets - what it does, the participants, and the nature of the products - and to indicate that the customer is supreme.

Section Two.

Section Two takes up the marketing problem in the construction industry.

The main objective of the section is to establish that contrary to what some evidence may have suggested, marketing is relevant and useful in the industry.

However, it is recognised that the main purpose of marketing in the construction industry, as anywhere else, is to reduce or manage potential risks.

Therefore, if marketing is to achieve this risk management function, it must be applied on the understanding that risk is better managed if it is better understood.

Accordingly, the effectiveness of marketing in the construction industry depends on whether the firm concerned understands itself and the market in which it is operating or wants to operate.

It is in this regard that there is a great need for the company concerned, to appraise both its environment and itself.

The need to appraise its environment arises from the fact that analysis of the environment or external factors which are likely to affect the company in its operations, would enable the company to identify danger spots, and thus take protective or preventive actions accordingly.

In the same way, appraising itself will enable the firm not just to know where it really stands, but also to identify its strengths and weaknesses.

With this information, the firm will be in a better position to plan a more effective marketing strategy, and thus enable marketing to achieve its risk management function.

What this chapter has done therefore, is to present a case that in spite of its complex nature, the construction industry can benefit greatly from the acceptance and application of the marketing concept, at least, in the management of risks.

SECTION ONEIntroduction

In this section, the construction industry will be defined.

This will be followed by some discussions of the parties in the industry, as well as the nature of the construction products.

It should therefore be obvious that the section does not claim to cover every aspect of the construction industry.

However, it covers those aspects of the industry which are adjudged to be relevant as explanatory variables in the risk perception of both the buyer and the seller in the industry.

It is hoped that this will bring to light some of the hidden problems of the industry which cannot be appreciated merely by reading through the definition of the construction industry.

Section One

The Construction Industry

Definition

The construction industry has been defined by the Institute of Marketing, Construction Industry Group as,

"that total industry which involves the utilisation of human, economic and natural resources in the conception, design, construction, maintenance or demolition of buildings and civil engineering works".⁽¹⁾

At the same time the Institute has acknowledged that the industry is made up of two parts - the building industry and the civil engineering industry.

The building industry has been defined as

"that part of the construction industry which is concerned with the design, construction, maintenance or demolition of all types of buildings".

The civil engineering industry on the other hand, has been defined as,

"most of that part of the construction industry which is concerned with the design, construction, maintenance, or demolition of the economic infrastructure of roads, and other communication facilities, and public works."

However, a critical examination of the definitions - building industry and civil engineering industry - would obviously reveal that the differentiation of the two industries, so it seems to me,

is largely a matter of academic convenience, or the context in which the differentiation is being made.

Ironically, this has been noted by the Institute of Marketing itself when it acknowledged that

"there is no hard and fast dividing line between the two parts".

The Institute therefore went further to main that

"if some arbitrary division is needed, then it is suggested that the definition of a building - (as used in the term building industry) - be limited to the concept of a single structure, or related group of structures, constructed on a (relatively) confined site, generally excluding those structure which are ancillary to, or form an integral part of engineering works." (2)

The practical difficulty of distinguishing the building industry from civil engineering industries is also evident in the definition of the construction industry which Hislop⁽³⁾ has offered. According to him, the construction industry -

"Consists of a loose assemblage of private and public enterprises, which through their activities, have become interlocked to a remarkable degree as a result of evolution in the face of a changing pattern of demand."

To justify his assertion that the nature of the activities of these enterprises has actually made them become 'interlocked to a remarkable degree', Hislop has provided an extensive list of the enterprises which operate in the construction industry.

However, a careful analysis of the activities of those enterprises would create a major semantic implication in the sense that, if the companies operating in the industry have become "interlocked to a remarkable degree" then, in practice, it would seem difficult to separate the two major parts which make up the industry.

On the basis of this practical difficulty of separating the two parts therefore, the term, "the construction industry" has been used to refer to both building and civil engineering parts.

Two important points about these definitions must be noted:

1. The first point to note is that the broad nature of these definitions is not so much an effort to be comprehensive - though this is not excluded - as an indication of the complex nature of the construction industry.

'Utilisation of human, economic and natural resources in the conception, design, construction, maintenance or demolition of buildings and civil engineering works' obviously involves complex relationships between and among variables. It involves complex contractual and human relationships.

The essence of all this is the need for efficiency in the allocation and utilisation of resources. In most cases however, the probability of achieving that efficiency is greater where there is a good co-operation and understanding among the parties concerned; - the understanding that each of the parties involved must perform his functions properly.

2. The second point is that although both definitions seem to be unanimous on what the construction industry is, each of them appears to be emphasising a different point.

The Institute of Marketing, for example, is emphasising what is utilised (the utilisation of) in the industry called 'Construction', while Hislop appears to be emphasising or stressing what the industry is comprised of (consists of enterprises), and how difficult it has become to separate their activities (have become interlocked to a remarkable degree).

It is therefore these enterprises, the participants in the industry, that make decisions; that perceive risks in the decisions they are making or want to make; and it is therefore these participants that employ risk-management strategies to eliminate or minimise the perceived risks. It seems therefore proper to consider who these participants are.

However, before doing so, two important points must be made quite clear:

1. The discussion will draw on the Report of the Institute of Marketing Construction Industry Group. This Report has already been acknowledged.
2. The discussion is not intended to be a detailed treatment of historical development of these participants. Those who are interested in such details are encouraged to consult, among other works, M. Bowley⁽⁴⁾, C.G. Powell⁽⁵⁾ which covers the industry, particularly the building part, from 1815 - 1979; or the Research Paper published in 1981 by J.C. Slack and R.W. Giles⁽⁶⁾. This paper provides some interesting details about historical development of the participants in the industry for the past one hundred and fifty years (150 years).

What the discussion here is concerned with is a consideration of the basic functions/roles performed or expected to be performed

by each of the participant groups and how these functions/roles affect the overall performance of the construction process.

The Main participants in the Construction Industry

Construction process involves a large number of categories of participants in a large variety of interactions and contractual relationships. This makes it particularly difficult to consider every one who is in one way or the other, connected with the construction industry. Therefore, only the main groups of participants are considered.

These groups include:

1. The client, who could also be the user;
2. The Design Team;
3. The Construction Team;
4. The Manufacturers;
5. Merchants;
6. Banking and Financial Institutions;
7. Public undertakings;
8. Authorities with statutory duties, and those engaged at the level in construction;
9. Education, Research and Development group.

Ordinarily, groups 1-5 constitute the core of the participants in construction process. However, the process of construction itself may in most cases be affected or influenced by the other groups, particularly by the behaviour of groups 6-8.

The influence of any of these groups of participants on construction process therefore, depends a great deal on the functions/roles of the group(s) or an individual participant within the group.

The essential functions/roles of the groups.

The client/user.

The client is, in most cases, the customer, the owner or his representative, of a construction project. The client plays an essential part in construction process in the sense that -

1. It is the client that initiates the whole operation.
2. The project itself is in most cases, "designed to order", because there are few standardised choices available to the customer, the client, in the same way as customers of most other consumer durables.

It is therefore the client that appoints a design team for this purpose.

However, there may be some exceptions such as in the case of "all-in", 'turnkey', or 'design and build' contracts where this particular function may be delegated to the main contractor(s).

3. The client also has the responsibility in the appointment of the construction team. Since he is the one who initiates the whole process, he has a crucial voice in the timing, location and pricing of the project.

The client therefore, is one of the most important participants in the construction industry, and his role in this respect has been recognised by various Government Reports, including those of Emmerson⁽⁷⁾ Banwell⁽⁸⁾ and Wood⁽⁹⁾.

The Wood Report, for example, stated that -

"the client has a duty to establish his objective clearly and monitor progress through design and construction".

In other words, the client has a duty, not just to originate or establish his needs, but more so to take risk management measures to ensure that any inherent perceived risk, does not prevent the achievement of the objective or the fruition of the idea - that is, the successful completion and delivery of the product or project.

Types of Clients

Broadly speaking, construction clients can be classified into three groups:

1. the public client, which forms the dominant part of construction customers, but who is not necessarily the sole user of the construction projects contracted.
2. organisations, which can be sub-divided into (a) commercial, (b) industrial, and (c) religious or societies.
Collectively, organisations as "a group of clients", in the construction industry, are a force to reckon with, particularly in a period of industrial boom.
3. the private clients:- which include mostly owners of residential buildings. In most cases, the private client is also the user of the project which tends to be relatively small in money terms.

This brief and broad classification of clients is intended to show that the position of the client as a participant, his duties/roles, and the degree to which both his position and

functions/roles influence other participants in the construction industry, depend on what type of client he is, and what his objectives are.

The Design Team

The importance of a design team featured prominently in the Banwell Report(10). According to the Report,

"A design and programme of work are essential prerequisites to any construction project. For this purpose, it is usual to seek the advice of an architect or engineer (or both) as the case may require ----. [Construction] work is becoming increasingly more complicated and highly mechanised, and there are signs --- that in many modern building and civil engineering projects, the advice and collaboration of a professional team is called for from the outset."

Accordingly, the design team is normally appointed by the client. It is difficult to generalise on the composition of the design team since membership tends to depend on specific contractual arrangements.

~ However, one would expect the team to include specialists such as architects, engineers, quantity surveyors, and other advisers required for the design, supervision, and control of the works.

Normally, the design team is assumed to be divorced from the construction team. However, in a 'package deal', 'turnkey', 'design and build', or 'all-in' contract, the design function, thus the design team, may not necessarily be separated from the construction team.

In such a case however, the client may demand and get an assurance from the main contractor(s) that adequate professional skill and care in design have been, or will be exercised to meet his requirements.

The Construction Team

Like its counterpart - the design team - membership of the construction team also is subject to specific contractual arrangement.

Basically, however, the construction team is made up of the main contractor(s), and specialist sub-contractors, other suppliers operating "supply and fix" services, and some professional advisers who may belong to other groups. For instance, it is not uncommon to find the architect or engineer as members of both the design and the construction teams.

The main contractor is normally responsible for construction of the project. However, the manner in which he can exercise this particular function may depend on the nature of the works, and the type of contractual arrangements.

Normally, most main contractors would delegate or sub-let parts of the works to sub-contractors. There may be some extreme cases - where the main contractor may carry out all the works himself, or reduce himself to a mere co-ordinator of the sub-contractors who then, defacto, assume the responsibility for the whole works.

The important point to bear in mind here, is that, whether the main contractor is carrying out all the works himself, or merely co-ordinating the sub-contractors, there is no doubt that the main contractor has an extremely important role to play in the construction industry.

His relationships with the client, the suppliers of required resources, the sub-contractors, the professions, and the like, as well as his own work force, are very important. They could make a world of difference between failure or success of a construction project.

The Manufacturers

A lot of raw materials, manufactured materials, components, equipment, and the like, are used in construction works, but are produced by manufacturers away from the construction sites.

These manufacturers may be classified into two types. (1) those whose output is directed wholly or principally to the construction industry; and, (2) those that belong to other industries, but certain of whose products are used by the construction industry. Firms manufacturing electricity products are such manufacturers included in group (2).

There are however, some parts or components which can be manufactured on or away from the site by some members of the construction team. For instance, some concrete products or materials can be made on the site by some members of the construction team.

Moreover, the trend towards "pre-fabrications", 'industrialisation', or 'system building', in addition to the fact that some of the components have become or are becoming more sophisticated and complex, have encouraged some manufacturers to start offering as sub-contractors "supply and fix services".

In such circumstances, such manufacturers could be said to be participating in the construction industry both as manufacturers and as members of the construction team.

The Merchants

Basically, these are stockholders for the large number of materials, components, fittings, and other items required throughout the life of a construction project.

They act as intermediary or link of supply between the manufacturers and the construction team. In addition, they provide short-term credit facilities particularly to the contractor and/or other members of the construction team.

Since merchants also act as "depots" for manufacturers, merchants are also placed in a good position to provide valuable technical and economic information to both the design team and the construction team.

Banking and Financing Institutions

This group of participants include all sources of finance for the construction industry, both during and after the construction process.

In most cases, the client may form the main source of finance especially in cases of the public client. However, financing of construction projects tends to be issues specific and therefore depends on the wording of the contract, the nature, and the magnitude, in terms of both the costs and size, of the construction project involved.

The banking and financing institutions are sometimes described as the 'life-blood' of the construction industry - in the sense that without their support, most of the activities of the construction industry would be paralysed.

X This assertion has been supported by various research findings on the causes of failure in the construction industry ⁽¹⁰⁾. In

addition, the history of the development of Building Societies in Britain⁽¹¹⁾ shows how vital the financial institutions were, have been, and still are, in the proper functioning of the construction industry.

Public undertakings

A completed construction project, particularly buildings, that have no vital facilities cannot in a real sense, be described as 'a finished product'.

To this end Public undertakings ensure that proper public utilities and/or services, such as water, communication, energy, and so on, are supplied to construction projects either during the process of construction, or when the project is finished or both.

Some of the Public undertakings have some statutory or mandatory control over the way their services should be provided and utilised.

In some cases, however, they may offer to participate directly in a construction project by sub-contracting for the supply, fixing, and connections of utilities and services to the construction project.

Apart from this, some public undertakings have some statutory duties to protect both the public, the workers within the construction industry, and thus, to some degree, the industry itself.

It is hoped that this may help the industry to develop healthy relationships among its members on one hand, and between the construction industry and the public on the other..

Thus Public Health Regulations, Building Regulations, Safety Regulations, and the like, which are enforced by the relevant departments at both central and local Government levels, are all intended for the benefit of the public, the customer, and the industry itself.

Education, Research and Development Group

As far as the present, and future needs, trend, and requirements of the construction industry are concerned, this group has some of the most essential roles to play in the construction industry.

Included in this group are all educational institutions and those involved in the training and development of human resources for the benefit of the industry.

The group also includes those engaged directly or indirectly in researching, analysing, and forecasting the social, technological, and economic needs of the construction industry, and then ensuring that these needs are fulfilled.

One important thing should be obvious here: as far as marketing as a philosophy is concerned, this is one of the areas where it can make itself most felt in the construction industry as a risk reduction function.

This conclusion is based on the logic that by systematically establishing the social and economic needs of the industry, and by implication, those of the society, the link between social and economic progress of a nation and the role which construction industry can play in satisfying these needs, are also established.

Secondly, since both the needs of the nation/customer and the role which the construction industry should play to satisfy those

needs are established through 'researching, analysing, and forecasting', the risk of wasteful resource allocation is reduced.

In essence therefore, the functions/roles of the Education, Research and Development Group, include searching and collection of information which can then be used to reduce perceived risks in decision making.

One thing must be pointed out though: the classification of participants into functional groups is not necessarily watertight. There may be some occasions when member(s) of one group are involved also in the activities of other groups.

With this background knowledge, we can now consider the features of the construction industry itself, in which the above participants function.

The Main features of the Construction Industry

Definition:

For the purpose of this discussion, and indeed, the rest of the work, all construction projects such as roads, bridges, ports, buildings, and the like, are defined as "Construction Products".

Like any other industry, the construction industry also has its own features. These features are reflected in

1. the activities of the participants in the industry, and
2. the nature or characteristics of construction products.

Since the participants have already been discussed in the preceding sub-section, this sub-section will concentrate on the nature of construction products.

1. Construction products are dependent on land, and in most cases, also fixed to the land;
2. Most construction products are heavy and large;
3. They are expensive;
4. They last for a long time; and
5. they take a long time to complete;
6. Most construction products are unique.
7. The design of a construction product, apart from "all-in", turnkey, design-build, package deal contracts, is in most cases, divorced from the production of the product itself.

Each of these features will now be examined in greater detail.

Dependent on land, and fixed to the land

Perhaps this is the most common, but also the most important feature of the construction product. It is the most common in the sense that every normal person can see a building standing on a piece of land, or a motorway on a stretch of land.

It is most important in the sense that virtually all construction products, with exceptional and negligible cases of offshore fabrications, perhaps, are fixed to the land.

Hislop⁽¹²⁾ has reinforced this point by pointing out that,

"Whatever degree of prefabrication is achieved there will be some need for stability fixings to land, and for services connections to points below the surface".

Three main implications seem to emerge from this feature:

1. In the first place, it implies that most construction products are used on the sites of their production. This would suggest that distribution of construction products, in the ordinary sense of the word, does not seem to constitute a crucial variable in the marketing strategy of a construction firm, the main contractor(s).

However, if distribution is seen primarily in terms of "delivering the product to the customer at the right time" then, this should become a crucial factor in the planning of the firm.

2. Secondly, it implies that most construction products are made on their sites. This in itself, has created three related problems:

The first one is that the required materials or parts must be transported to the site with obvious transportation and storage cost implications.

The second problem is that unfavourable weather or site conditions could adversely affect the completion date, which may have some further financial repercussion on the company.

The third problem is that even in the absence of the second problem, the separation of the site, where the work itself is being undertaken, from the headquarters or office from where the directives, and the required resources for the project must come, could create some confusion, frustration, and other associated problems which may lead to delays⁽¹³⁾.

3. Thirdly, it implies that any increase in demand for construction products includes an increase in demand for land.

However, an increase in demand for land does not necessarily imply an increase in demand for construction products, since land can be used for so many other things.

The long term future of the construction industry therefore, seems to depend on availability of land and how efficiently land is managed for this purpose.

Large and heavy

Even if this is compared with most other industrial durables, most construction products are heavy and bulky.

This feature however, is assisted by the dominant position of land in the construction industry. The implications of the feature therefore are the same as those of the previous feature.

Expensive

Most construction products are expensive when compared with other industrial durables. The feature itself seems to have originated from, and been reinforced by the fact that some construction projects, such as ports, motorways, buildings, and the like, are really large. As such many authors⁽¹⁴⁾ have pointed out that they involve correspondingly large sums of money.

This brings us back to the issue of risk perception by decision makers. We may recall that in chapter two, we showed that the decision maker's perception of risk is influenced by the magnitude of the expenditure involved in the buying decision being made.

This would imply that since most construction products are expensive, the perception of risk by those involved in the buying decision process will be high enough to make them take some appropriate risk management measures.

They last for a long time

Most construction products last for a long time [except in the case of temporary structures]. Some buildings or bridges built centuries ago, are still in good use.

However, some construction authors⁽¹⁵⁾ have pointed out that, to some extent, the long life of construction products, such as ports, and so on, could be "a disadvantage" in the sense that the process of innovation in the construction industry may be delayed, and the demand itself affected.

It could be observed that many construction products have an agreed life for purposes of depreciation. But then, this is also determined by the customer and not the seller, the construction company.

There is therefore, the temptation on the part of the sellers to shorten the lifespan of the products if this would help increase the demand for the products.

However, it is also recognised that, while a deliberate policy of "built-in obsolescence" in the construction products could increase the size of the industry and keep demand afloat, such a policy could also increase the probability of legal liability for construction firms.

Besides, doing this without the use of an alternative cheaper and better method of construction than used at present, could obviously increase the cost of construction perhaps, out of proportion.

The end result will be that the customer will lose both ways in the sense that he will be paying more money for a shorter lasting product.

Faced with this dilemma, recent research has nevertheless, been geared towards finding new methods of construction which will reduce the cost of producing construction products without necessarily reducing the quality or life span of construction products. The advantage of this seems to be that the general reduction in cost of production may enable more people to afford the price of some construction products.

Long time to produce

On average, most construction products take a relatively long time to produce. It is recognised that for a truly innovative industrial produce⁽¹⁶⁾ the overall time required for its production may be long, especially if the time from idea generation to the actual production of the product is considered.

However, once the production starts, it is possible to develop a learning curve, and so make use of the economies of repetition in a controllable and properly housed production line.

In the case of the construction product, the situation is different. In the first place, the effects of land as the dominant attribute of construction products have already been noted.

Secondly, the fact that most construction products are 'unique' seems to suggest that the benefit of economies of repetition may not be realised⁽¹⁷⁾.

Thirdly, the design of most construction products is divorced from production. During the construction itself, there are so many things to be done by so many different people, some of whom are completely outside the control of the construction firm.

The result is that, it takes a long time before the product may be finally ready for delivery, though there may be some exceptions, such as emergency projects.

However, as Atkinson⁽¹⁸⁾ has suggested, the firm can take advantage of this "long time" to establish a good personal relationship with the customer which may have far reaching implications for future contracts with the customer.

Unique

Adrian⁽¹⁹⁾ has noted that most construction projects are unique in the sense that, even where designs are the same, it is highly unlikely that the site conditions in terms of land, weather, and other related variables will be the same.

Similarly, Morris⁽²⁰⁾ observed that

"although the typical form of work in the industry is a project, this is often only concerned with doing new things in a very literal sense".

In support of this, Maher⁽²¹⁾ has recently also stated that no two construction projects can be identical in either form or construction.

It could however, be argued that in some cases, such as construction of houses, this uniqueness may be greatly reduced, especially where the houses are all on one site.

In general however, most construction authors agree that, although one building design, for example, may be similar or identical to another, the process through which, and the conditions under which, the design is converted into a physical structure, involves a lot of factors that tend to vary with projects.

It is this variability that distinguishes the construction process from other manufacturing processes which mass-produce their products in a standard form.

The uniqueness of construction products seems to be reinforced by the fact that the requirements of individual customers and the circumstances surrounding the purchase of the construction product may not be the same.

The uniqueness of construction products, particularly the one arising from the individual customer's desires, is supported by the fact that most construction projects are legally sold before they are, in fact, made.

In other words, the medium of producing most construction products is "the contract", which does not only establish binding obligations, but also forms the basis for its performance.

There is one major advantage which is related to this "sold-before-made" characteristic of some construction products.

It has been pointed out already that some construction products take a long time to complete. There is therefore a possibility that the customer's needs or taste may change before the production of the product is completed. Obviously, this could lead to enormous losses on the part of the firm.

However, by legally selling the construction product before it is physically made, this possibility of losses arising from changes in the customer's taste or needs, is eliminated, or at least minimised.

Some authors⁽²²⁾ have argued that the advent of modern building technology may reduce some degree of uniqueness in

construction products, especially in terms of the physical aspects of site condition.

However, whether this will be so still remains to be seen. In any case, the possibility will surely be welcomed in the construction industry.

Design is divorced from production

Technically, it could be argued that design is part of production. However, 'production' is used here to mean the conversion of drawings into physical shapes or structures, such as buildings, and so on.

Apart from some "turnkey", "design-and-build", or "all-in" contracts, most designs for construction are undertaken on the instruction of the owner by the specialists, architect or designer, who may have nothing to do with the final production of the product itself⁽²³⁾.

This separation of the vital participants of the construction industry has been the concern of a number of Government Reports and Construction authors.

For instance, one of the most important observations made in the Banwell Report⁽²⁴⁾ was that

"The various sections of the industry have long acted independently."

The Report therefore recommended that this should be eliminated or at least be reduced because

"we consider that the most urgent problem which confronts the construction industry is the necessity of thinking and acting as a whole."

To justify this recommendation the Report pointed out that, to call in a contractor to a site on which a complicated scheme - the planning of which may have taken months or even years - is to be executed, and to expect him to be able to make himself thoroughly familiar with his task and to settle the right way in which to do it, when work must start within a few weeks or days, is unreasonable.

Bowley⁽²⁵⁾ also has expressed some concern about the separation of design from production, and maintained that integration of the two functions is necessary for efficiency, innovation, and technical progress.

The design function, she maintains, includes design in all its aspects; that is, the design of the structure required by the customer, the choice of materials, and the provision of the services and amenities as well as the overall arrangement of space, elevation, and layout on the site.

Consequently, Bowley concluded that unless all these aspects are taken into consideration from the start, and the design worked out as a unified process, on the basis of all the expert knowledge relevant, a building may be less efficient than it should be, even though the customer may not be aware of this.

Thus, as far as Bowley is concerned, the separation of design from production of some construction products may not be in the overall interest of the customer.

The Emmerson Report⁽²⁶⁾ expressed a similar concern over the lack of cohesion between the various parts in buildings operations. Similarly, Parlett⁽²⁷⁾ appears somewhat critical and unhappy about the "fragmented" nature of work in the construction industry.

He observed with dismay, that not only are professional services separated from those provided by the contractors, but work is carried out by many sub-contractors. This has some other implications in the sense that most of these sub-contractors are outside the control of the main contractor.

Recently, Owen Luder⁽²⁸⁾ the president of the Royal Institute of British Architects (RIBA) also expressed his concern about the fragmented nature of the construction industry. This concern is also widely shared by Laing⁽²⁹⁾.

Other authors such as Adrian⁽³⁰⁾ and Jepson and Nicholson⁽³¹⁾ have also expressed their views on this particular issue. However, they, like Banwell, seem to be particularly sympathetic with the construction company because of the problems which "constructing a predetermined design of the owners" could create.

Jepson and Nicholson⁽³²⁾ for example, have pointed out that the separation of design from production has led to a situation where, while the designers create conditions which must be fulfilled to satisfy the owner, the construction firm which undertakes the contract, and thus technically has accepted those conditions, is normally not subject to the control of the designers.

There is however, one major implication which has emerged for the construction company. The ability of any construction company to meet the needs or requirement of the customer is critical to its success.

Yet, the conditions under which the needs of the customer must be met are, in fact, imposed on the construction company by people over whom it has no control.

There is no doubt that this "tradition" has survived the rigours of the various changes which have so far taken place in the industry. Yet, there is obviously the need for a greater cooperation among the parties concerned.

In this regard, the tendency of most large and medium construction companies to have complete construction facilities, should be seen in the industry as a step in the right direction.

Brech⁽³³⁾ alluded to the same concern about the separation of design from production of some construction products. However, he noted that design is an

"intellectual function in which considerable imagination and initiative is called for."

Looking at it from this angle therefore, some orthodox economists would argue that the separation of the functions is in keeping with the principles of the division of labour⁽³⁴⁾.

Whatever the argument, the important thing to bear in mind is whether the interest of the customer has been or may be affected by this division which may also have some adverse spillover effect on the construction company.

Conclusion

This section has endeavoured to present the construction industry, in simple terms, as far as it is necessary and relevant to the overall objective of the section.

In doing so however, the activities of the people or firms that participate in the industry, and the nature of "construction products" have been established.

It seems however, that in terms of the products, most of the features seem to originate from, and/or are aided by the dominant position of land as a construction product attribute.

The present division of labour in the industry, technically for efficiency, seems to be causing some concern both among construction authors and practitioners. This should not be allowed to affect the satisfaction or the interest of the customer.

Whether these features have any effect on the marketing strategy would depend on how they are understood and/or interpreted by the construction firm.

SECTION TWOMarketing ApproachIntroduction

In the previous Section, an attempt was made to present the construction industry in terms of what it does, its participants, and the nature of its products.

This was intended to show that, although most of the construction industry is, in fact, part of the industrial market, the overall nature of the industry does not seem conducive for effective application of most traditional marketing methods.

Therefore, what this Section suggests is that, marketing in the construction industry should take on more seriously a planning/risk management function.

However, risk is better managed if it is better understood. Accordingly, this Section is built on the theme that it is essential for the construction firm to have a good knowledge, not only of the construction market, but also of its own strengths and weaknesses.

This will place the company in a better position to take subsequent decisions, and to meet its commitments to its customers.

Section TwoMarketing Approach

Sometime ago, Brech⁽³⁵⁾ observed that

"there has been very little evidence of management in the construction industry of Britain. Yet, no modern industry has a greater need of the management process, of effective management practice."

This observation needs further clarification: Brech may be talking in terms of effective management generally. However, marketing is an essential part of management.

It seems therefore, highly unlikely that marketing would be actively present in an industry where there was "very little evidence of management."

This point is reiterated by Harris and McCaffer⁽³⁶⁾. However, unlike Brech, they noted specifically that

"little interest has been shown by construction companies in marketing matters."

The most authoritative expression of this same point came from the Institute of Marketing⁽³⁷⁾. It observed that,

"for some reason, the British construction industry has been reluctant to adopt the marketing concept."

The Institute attributed this reluctance to two main reasons:

- (i) the mistaken view that, because of the nature of the construction industry, marketing is not required, since the products or service will sell themselves as long as they are good enough;
- (ii) the general reluctance to see and appreciate the "other side" of new things and/or ideas, which may have led to resistance to change, both on the part of the buyer, the customer, and the seller, the construction company.

There is also some evidence to suggest that these reasons are valid. Hislop⁽³⁸⁾ for example, contended that

"generally speaking, marketing has not seemed as appropriate to the professions and the contractors of the construction as it has to the manufacturers of materials and components which the industry uses."

His contention is based on the fact that, most professions in the industry are bound by rules of conduct which may preclude the use of most of the tools of marketing⁽³⁹⁾.

Related to this is the fact that contractors themselves are aware of, and tend to look at the way construction contracts are obtained, particularly in developing nations like Nigeria.

Under such circumstances, they find it difficult to see how the acceptance and application of marketing can change or improve the situation to their own advantage, both in the short run and in the long run⁽⁴⁰⁾.

Relevance of Marketing

What we have seen in this Section so far, may have provided an unfortunate impression that the construction industry does not need marketing.

The fact is that, it does; because marketing can be applied and, in fact, is required in any business organisation as long as it can be adapted to suit the market in which it is being called upon to serve. The construction industry therefore, cannot afford to be an exception.

In the first place, a critical examination of the definition of industrial marketing offered earlier in this study would suggest that most of the construction industry, and hence the construction market, is within the general framework of industrial marketing.

Consequently, most of the features of industrial marketing also apply to the construction market.

The Institute of Marketing for instance, has noted that some of the industrial marketing features, such as -

- (i) the derived nature of demand;
- (ii) the relatively small number of buyers who have large buying capacity in money terms;
- (iii) the durability of some products, as well as their long manufacturing cycle; and
- (iv) the importance of buyer-seller relationships;

are also applicable to the construction industry, though with varying degrees.

Secondly, marketing 'INSISTS' on the need on the part of the firm to meet the requirements of the customer. Obviously, this entails taking some measures to ensure that this is possible.

In effect then, marketing is an important risk management mechanism which the construction firm can use to manage its perceived risks.

This should be of vital importance to the construction firm, especially as there is some evidence to suggest that failure on the part of the firm to meet its commitments to its customers, may constitute a serious risk to the firm^{(41) (42)}.

Rodger⁽⁴³⁾ for example, has made a strong case for what one may call "omniapplicatus" of marketing. He maintained that

"the marketing concept is applicable to all business organisations, irrespective of size or nature of the goods and services marketed."

Adrian⁽⁴⁴⁾ made a similar point. He observed that

"marketing business function is fundamental to the necessity of all other business functions."

Francis⁽⁴⁵⁾ reiterated the same point and noted that marketing is essential for the long term survival of business organisations, particularly in the present competitive business environment.

In an apparent effort to remind various organisations of the crucial role of marketing in their success, the Institute of Marketing recently circulated a leaflet in which it stressed that

"the importance of marketing to the success of any organisation is universally accepted."⁽⁴⁶⁾.

Baker⁽⁴⁷⁾ also alluded to the same view in the 'Introduction' of his recent book where he has argued a case for "profitability" and the survival of the firm.

In a recent survey of the construction industry by the Institute of Marketing, Construction Industry Group (IMCIG), various construction firms were asked to express their views about marketing in the industry, in the light of changes which are taking place in building methods and in other areas of construction.

No one would expect the companies to react only in one particular way to changes which are taking place in the construction industry. Their marketing strategies are bound to differ from one company to another.

However, their responses were clear enough to leave no one in doubt about the relevance of marketing in the construction industry⁽⁴⁸⁾.

The survival of the construction industry as a whole was not in doubt. However, the responding companies felt that individual companies would best succeed if they could

"Generate their own work" or
"Anticipate the clients' needs (separate from the actual building) and do this as early as possible before the
"contract decision" is made."

One of the companies emphasised that it would continue as far as possible to make more efforts

"to improve marketing by paying attention to (potential) clients' demands."

Another firm revealed that it would continue to

"Search for new methods to provide the various customers with the answers to new questions - basically a keener concern with real efficiency, cost competitiveness, and an ability to get out of the rut by making prospective customers aware of their existing and potential needs."

The importance of 'internal marketing' was also suggested. For example, one of the responding companies suggested that

"Marketing may have to assist higher management by increasing interest and motivation of the whole workforce of both staff and operatives to get higher productivity."

A very useful testimony also came from another company which claimed to have "been totally committed to marketing in the construction industry for the past 15 years."

It revealed that the knowledge it had obtained "is now being used to move up market into a non-competitive tendering situation."

The conclusion one can draw from this is that although the responses from the companies may be talking about different things, they all show that marketing is useful in the construction industry.

It seems therefore that the question is no longer whether marketing is relevant in the construction industry. Certainly it is. The major problem is how the construction company will realise this so that it can identify which form of marketing is most appropriate to its situation, and so make more use of marketing to its own advantage.

As a matter of fact, most 'large' and 'medium' construction companies have marketing departments, headed by Marketing Managers or directors.

However, discussions with some of them have revealed that their functions have been limited to searching the market to find where new contracts are or will be available so that the company can tender or prepare to tender if it so desires.

In a recent advertisement for a Marketing Manager by one of the major construction companies, for example, the responsibilities of the Marketing Manager were stated as -

"the development of contacts with potential clients and their professional advisors, and the generation of opportunities to tender for construction work in both the public and private sectors." (49)

Beyond this, it would seem that, although there may be some exceptions, in general, most marketing departments in the construction industry are not sufficiently involved in the subsequent decisions which may lead to the winning of the contracts.

In this regard therefore, it would seem that the function of the marketing department in a typical construction company is basically that of market research/sales force in a very limited sense.

This also seems to suggest that the risk management function of the marketing concept, and, indeed the practice of 'marketing' itself, is yet to be usefully realised and utilised in the construction industry.

Knowledge of the Construction Market

The usefulness and effective application of the marketing concept depends on the company's overall knowledge of the market concerned.

This is so because it will enable the company to know where, when, and how to adapt as well as the degree of adaptation which may be required.

The inherent risk in designing beautiful marketing strategies without first understanding the markets concerned is becoming increasingly apparent.

Calvert⁽⁵⁰⁾ for example, has observed that,

"an essential pre-requisite to an effective marketing action is a comprehensive knowledge of the construction market."

The logic of his contention lies in the fact that a construction firm that is not only aware of the features of the construction industry, but also aware and mindful of

- (i) the fluctuating nature of the construction market which may affect workload and lead to idle capacity;
- (ii) the dominant position of public customers in the market; and
- (iii) the keen competition within the industry which may be aggravated by the relative ease with which firms can enter the industry;.

should, under normal circumstances, be better placed to make more effective planning for marketing action.

A comprehensive knowledge of the construction market should also enable the construction company to know that, although the construction industry market fluctuates generally, the degree of fluctuations and the reasons for such fluctuations, may not be the same in every sector of the market.

For instance, market fluctuations which affect commercial or residential building sectors may not necessarily affect the public sector, such as roads, ports, hospitals, and so on, in the same way.

Edens⁽⁵¹⁾ for example, reported some interesting findings which are of relevance here. In his study of the effects of fluctuations in Foreign Exchange reserves on the volume of construction, he found that although the developed nations of the west had by 1955 managed to protect their domestic construction from fluctuations caused by foreign exchange reserve problem, the construction of dwellings in these countries was still affected by external shocks primarily due to the nature of financial institutions which affect the private sector.

In the developing nations however, the opposite pattern was observed. It was found that although total domestic construction

was not protected from external movements in exchange reserves,

"the construction of dwellings was less affected on balance."

This was explained by the fact that, while the less developed countries (LDC) were unable to maintain construction spending, when fluctuations in foreign reserves position forced them to make changes in fiscal and/or monetary policy, the construction of dwellings was found to be protected because most of the funds for them came from private accumulated savings or was secured from private financial market.

One can then see the need for the construction firm to have some knowledge about the construction market. Apart from the advantages which have been discussed above, a good knowledge of the market will enable the firm to know what type of customers dominate particular sectors and which sectors of the market are most prone to the effect of derived demand.

Market Selection

The main objective of having such overall knowledge is to enable the company to choose not just the segment of the market it would like to serve, but also the one which it will serve most efficiently in the best interest of both the customer and the construction company.

The importance of the right choice of the market as a step towards a successful marketing operation is increasingly being emphasised by marketing authors. Corey⁽⁵²⁾ for example, has dealt at length with this point. He maintains that the basic and most important decisions in planning marketing strategy or approach, are those relating to the choice of the market to serve.

"All else follows."⁽⁵³⁾

Winkler⁽⁵⁴⁾ expressed a related view, while Webster⁽⁵⁵⁾ is of the opinion that,

"the most critical decision made by marketing management is the definition of the market targets."

Ames⁽⁵⁶⁾ has also given credence to the same view. He maintained that the first step towards a successful marketing strategy is,

"Selecting customer groups for emphasis or choosing the right market segment to attack."

Naturally, Ames added that selection of the market segment to attack should be followed or accompanied by identification of customer needs or requirements.

Harris and McCaffer⁽⁵⁷⁾ also expressed the same view, but extended it to include the possibility of the market trends, future needs or requirements which may be used as a forecast.

The problem however, is that in practice, establishing customer need, particularly future needs, in the construction market, may not be as easy as it may seem at first, particularly where public customers are involved.

This is particularly the case in countries with many political parties with radically different policies: Governments change and there may be no guarantee that the programmes of the predecessor will be continued.

For practical purposes therefore, it may be more realistic to define "future needs" of public customers in terms of the normal

terms of office which any incoming government or local authority is allowed under normal circumstances.

Customer requirements

Unlike most other markets, satisfying the needs of a customer in the construction industry is undertaken through a valid bilateral contract⁽⁵⁸⁾. This in itself is very risky.

Yet, the risk is increased by the fact that, apart from "all-in" contracts⁽⁵⁹⁾ the construction firm is in most cases given predetermined conditions which must be fulfilled in order to satisfy the owner's requirements.

In other words, while the meeting of the owner's requirements is crucial for a successful operation of the company in the industry, the method of meeting those requirements is in fact, dictated to the firm.

It would seem therefore, that the important factor to consider is not just the ability of the company to meet the buyer's requirements, but also the degree of confidence which the customer has that his needs will be satisfactorily met by the construction firm.

This is exemplified in the recent speech by John Boland⁽⁶⁰⁾ the current President of the Scottish Building Employers Federation (SBEF), when he stressed the need on the part of the construction industry firms to convince the clients that they have a construction industry which is alive to their needs.

"A construction industry which can give the buildings and services they require, when they require them, and to the standards they seek."

It is interesting to note how the importance of the product and its quality, time or delivery, has been explicitly emphasised.

Adrian⁽⁶¹⁾, Maher⁽⁶²⁾ and Burns et al⁽⁶³⁾, have also expressed the same view. Burns et al, for example, have maintained that generally the buyer of the construction product has three main goals or desires:-

1. He wants to buy the product at the lowest possible cost. (Price consideration).
2. He wants the product to be of high quality. (Performance consideration), and,
3. He wants the product to be completed as soon as possible. (Delivery consideration).

There is no doubt that price, performance, and delivery are important basic variables in the satisfaction of the buyer's needs in the construction industry market. Besides, these variables can hardly be separated in the construction industry because of the legal implications which are very often involved.

However, the three goals of the buyer as stated above, are rarely completely satisfied in any one contract in the sense that they are in part 'mutually exclusive.'

Take for instance, the lowest cost. The buyer may achieve this goal except that it may, in most cases, adversely affect quality and also lead to slow completion date.

The highest quality on the other hand, may mean high cost and possibly lead to slow completion date as well; while the most rapid completion date may mean high cost and possibly low quality.

Most clients therefore compromise among the three goals or desires to achieve in the greatest degree, those needs which they consider to be most important to them.

For example, the importance of, and thus the emphasis on completion date, quality, adherence to specifications price, and the type of materials to be used, will depend on the client's desire, and the purpose for which the construction product is intended.

The buyer of a construction project, for instance, which is intended to be used as a supermarket, would most likely have rapid completion date as his priority, particularly if the buyer's aim is to open the supermarket during a particular season. So also a public client who is keen to see a particular project completed during his term of office.

One thing must be made clear though: each type of contract - fixed price or lump sum, cost plus, and so on - tends to vary in its effectiveness in achieving one or the other of the three basic needs of the customer discussed above.

This suggests that the weight which the buyer attaches to each of the basic goals will most likely have a predominant influence on what type of contract the buyer will select, unless where this is limited by law, as in the case of the United States.⁽⁶⁴⁾

Two issues now seem to be involved:

1. The need to identify or anticipate what is likely to be the customer's priority. This can be determined by market analysis.

2. The effects which this priority of the customer will have on the company's capability. This should be ascertained by the analysis of the company itself.

Market Analysis:

Operating definition

Market analysis is defined here to include all planned effort of the company to obtain the relevant and necessary market information which the company requires to make decisions concerning the customer's needs and/or the market it has chosen to attack or serve.

Such information however, should include,

- (i) A careful examination of the customer.
- (ii) A careful analysis of competitors for contracts.
- (iii) An assessment of the market potential; and
- (iv) An analysis of the competition for resources.

These 'information areas' will now be discussed under the sub-headings (i-iv).

(i) Analysis of the customer

The nature of a market greatly depends, among other things, on the types of customers that operate in that market. In the construction industry, a careful examination of available records on the potential customers will enable the company to have better ideas about what they are and how to deal with them.

For instance, while some customers may prefer negotiated contracts, others may prefer to choose contracts mainly on the basis of tender.

Some customers too, may adhere more rigidly to contract provisions. This may well be an indication that such customers can more readily apply any protective clauses that may have been included in the contract wording.

Obviously such actions by the customer may have some serious effect on the profitability of the company that may be dealing with such customers.

Analysing potential customers also enables the company to know the financial position of the customer. As one author put it,

"until recently, it was the contractor's financial position that was questioned; today, even the client has money problems." (65)

In effect then, this seems a tacit reminder to the company that it may be increasing its risks by obtaining contracts from customers whose ability to pay for these contracts is open to doubt.

Thus, analysing the customer is not just to identify his needs, but also to enable the firm to be aware of other factors as well which may affect the company.

(ii) Analysis of competitors for contracts

A careful survey of the past performance of competing companies may expose to the construction company those areas of contracting which have been successful. A further analysis of why the company has been successful in these areas may provide some base for the firm to consider them as favourable areas for development.

Conversely, through the same process, the company, will be in a position to identify those areas in which it has been less successful. If further analysis of the factors which have been responsible for the company's lack of success in those areas shows that the situation cannot be altered, at least in the short run, in the company's favour, then those areas should be avoided.

Harris⁽⁶⁶⁾ has therefore suggested that in analysing competitors for contracts, the crucial points to determine should include -

- (a) the present market share, turnover, and profits for the different types of work it may have undertaken; and
- (b) the market share, turnover, and profitability of each of the major competitors.

The logic of this suggestion is based on the premise that having relevant information on those points (a-b) above will enable the company to identify the areas that need improvement, so that, if need be, the company can become more competitive.

(iii) Assessment of the Market Potential

In planning marketing strategy in the construction industry, a grave mistake can easily be made if the company concentrates all its effort to learn about the competitors, but does not equally have enough knowledge of the market it wants to serve, or expand.

It is therefore essential that the intended or existing market itself must be thoroughly researched in order to identify patterns and trends for the future. Such effort should however, concentrate on the following points:-

- (a) The type and volume of work available for tender and negotiation during recent years, and the likely position in the future.

Adrian() has suggested that where the analysis shows substantial future contracts which may enable the firm to achieve its goals, then the company should aim at allocating its resources in such a way as to maintain balance between "overloading", and "underloading" of its resources.

- (b) The number of competitors that have tendered in the recent past and are likely to tender for different contracts put on the market, the location of work, and the customers involved.

In a difficult market, such as the construction industry market, there is great need for the company to examine what actions its competitors may take over the relevant time period that will affect its market, human and material resources, suppliers, or its overall operations in the market.

The need for this arises from the fact that, as the Institute of Marketing has put it,

"developing your marketing strategies is easier when you have compared and evaluated the concepts, techniques, and current thinking of others" - your competitors⁽⁶⁷⁾.

Admittedly, most construction companies face a relatively large number of competitors, and so it may not be possible to analyse all of them.

However, it is possible to examine a number of the most important ones whose activities may have direct effect on the performance of the company.

- (c) A forecast of the likely growth of the market, sector by sector.

The influence of Governments or public customers on the construction industry cannot be overemphasised. Accordingly, Government projections (Party manifestos or the like should be considered) for development of any particular area or sector, could be an indication of potential work both directly in the form of cash injections to that area or sector, and indirectly in the sense that there will be a demand for additional services for those areas or sectors.

It must also be noted that the growth rate of the Gross Domestic Product (GDP), and the position of balance of payment, may also affect the overall demand in the construction industry.

It is therefore important that in forecasting demand in any particular sector of the construction industry, these factors must also be considered.

Generally therefore, the main objective of analysing the potentials of the market is, and/or should be, to generate useful information for the company to see which sectors are buoyant, and the type of companies operating in them, as well as the sectors which are, and will be, investing in construction.

(iv) Analysis of the competition for resources

Earlier in this study, it was pointed out that any identification of customers' needs is of little use if those needs will not be satisfied.

Similarly, there is no point for a construction company to make plans for a new market, or to expand an existing one, if the

required resources such as capital, materials, and labour, are not there to enable the company to satisfy the needs of the markets.

There is therefore, the need for the company to find out more about the availability of these resources and the likely competitors for them.

Capital

Money is essential for any new construction business to enable the company to purchase the required equipment and materials.

However, availability of this capital depends on how successful the company has been in the past in making profits and building up its own reserve fund. In absence of its own funds, the company can also borrow from the lending institutions.

In normal circumstances however, most lending institutions are more likely to risk their capital in a firm that has good records of success.

Not only that: some financial institutions would also prefer the sound record of achievement to be backed by substantial resources to match those to be loaned.

The need to consider seriously the question of capital arises also from the fact that availability of capital itself from the lending institutions is inextricably bound up with the condition of the national economy, and the Government policy or reaction to the state of the economy.

For instance, in general, most governments use the construction industry as an economic regulator. Yet, it may be misleading to jump to conclusion that every government will automatically increase public spending through construction to get

out of an economic depression or slump. It may depend on the government in power.

It is in this respect that a careful examination of the constant economic cycles of boom and clumps, and the successive policies of the governments during such cycles, may be desirable.

In any case, in order to minimise the risk of non-availability of capital, any longterm plans which the construction firm may have made about capital must have an 'internal base', so that it can withstand any effect of government policy which may adversely affect the external sources of capital.

Materials

To plan a marketing approach on the assumption that all the required materials will always be available is, to say the least, to increase the company's risk probability in its operations in the construction market.

Even if this assumption bears the company out, there is still the need to make some effort to determine the degree of availability and the location of the sources of these materials.

In doing so however, there is need to separate the sources of required materials into three; namely,

- (i) those materials that are supplied from domestic sources.
- (ii) those materials that are supplied from abroad, but come from countries whose economies are similar to that in which the company is operating; and
- (iii) those materials which are supplied from developing countries.

Situations (i) and (ii) generally present reliable sources, both in supply or delivery and price. Normally, one would expect keen competition and so substitutes are, in most cases, available to the company should it find it difficult to get a particular item.

However, one must not lose sight of the fact that, situation (ii) could still present some problems due to change of Government or policy in these countries.

For instance, the behaviour of some governments in recent years seems to suggest that situation (ii) could still present some risks for the firm if the required materials are no longer forthcoming. Take the recent American Embargo on some European companies, including John Brown of Britain, because of their involvement in the Russian pipeline⁽⁶⁸⁾.

These companies (with American connections) however, were not construction companies in the ordinary sense. Yet this could serve as an indication of how risky situation (ii) can be for the construction company that depends entirely on it without making adequate provisions for any risk arising from it.

Another risk which could arise from situation (ii) relates to the nature of the developed Western economies. Since the beginning of this decade, the developed Western economies seem to have become so closely aligned that a major "upswing in demand" is likely to be felt by most of these economies almost at the same time.

There is therefore a likelihood that this will cause some severe shortages which will most likely lead to escalation of prices of the required materials.

Situation (iii) can present very serious problems and any construction company that draws up a marketing strategy based solely on it, should think again in terms of diversifying its sources of supply.

The problem may be seen as mainly that of unstable Governments. Even if this is so, it also affects the economies of these countries. The fact however, is that in most cases, it is the economic situation that may lead to the change of Government or policy.

Consequently, where there has been a change of Government, the incoming Government is most likely to take measures which may drastically disrupt the smooth supply of materials from countries in situation (iii).

This is especially relevant to developing nations in the sense that many construction projects in many developing nations have been delayed in completion, or even completely abandoned due to lack of required materials and other resources. This does not speak very well of the company concerned.

The construction company should therefore be mindful of this possibility of disruption which may result from political instability in situation (iii) and make provisions accordingly.

Labour

The problem of labour in the construction industry has almost always been a difficult issue on which a general statement can be made. The fact is that, not many construction companies can afford to keep all their employees when there is nothing for them to do.

For a large number of the site labour therefore, their appointments may end with the completion of the project on which they were working.

A National Economic Development Office (NEDO) Report on the Scottish construction industry⁽⁶⁹⁾ for example, found that

"60 per cent of contractors registered in Scotland have fewer than eight employees, and nearly a third of contractors' operatives work in firms employing under 35 people."

Another NEDO Report on construction, covering the whole of Britain, also found that over 30 per cent of the employees in the construction industry were with firms employing less than 35 persons⁽⁷⁰⁾.

However, the Report also found that another 30 per cent were with those employing 600 or more.

It seems therefore that, as for the "unskilled" labour, the company with relatively small number of vacancies to be filled, may have less problem in finding the required labour when they are needed, though this may not apply to those companies employing 600 or more.

The situation however, is different when it comes to "skilled" labour. The whole process of planning, tendering, winning and executing construction contracts require the professional skills of highly trained staff.

It is accepted that, the extent to which these skills will be required will depend on the type, nature, or magnitude of the contract.

This notwithstanding, it is generally agreed that it is essential for the construction firm to analyse its human resources requirement so as to leave alone those sectors of the construction industry which require skills that the company does not have, and will or may not be able to acquire when they are actually required.

The overall objective of market analysis therefore, is to enable the construction firm to take pre-emptive measures against potential sources of risks. In this regard, the value of market analysis to the construction firm cannot be overemphasised.

Yet, in itself, market analysis is inadequate to meet the needs of the construction customer, if it is not accompanied by a thorough analysis of the construction company itself.

It is in this sense that our attention is now turned to the need for the construction company to appraise itself in great detail so that it can determine where its strengths and weaknesses lie. This would make for a better marketing strategy.

Company Analysis

A lot of work seems to have been done on the subject of internal appraisal of a company in order to enable it determine its strengths and weaknesses.

Ansoff⁽⁷¹⁾ in particular, has treated this area in a considerable detail, though he seems to concentrate more on the company's strengths as opposed to its weaknesses.

He has also listed four main areas which the company should examine in its internal appraisal. These areas are general management and finance, research and development, marketing and operations.

It seems therefore, that although Ansoff was not writing for a construction company, he has provided a useful approach which the construction company can use to appraise itself.

Other authors, such as Argenti⁽⁷²⁾, Steiner⁽⁷³⁾, Hussey⁽⁷⁴⁾, wing⁽⁷⁵⁾, Walley⁽⁷⁶⁾ and to some extent, Ackoff⁽⁷⁷⁾ have also, in varying degrees, dealt with the need for the company to appraise itself so that it can establish its strengths and weaknesses.

Apart from these authors, there is also a general agreement among management authors that a strategy which employs a company's known capabilities is less risky than one which does not.

Besides, an analysis of the company's strengths and weaknesses will show the firm which areas it can concentrate its effort on for further development, and avoid areas in which the firm is obviously weak.

It is however, doubtful, as Argenti himself has admitted,

"if any checklist can be devised that will include all the items that every company should consider in [its] internal appraisal."

Nevertheless, five key areas have been identified as essential areas to which the construction company should pay particular attention.

These areas are:-

1. The structure of the company;
2. The human resources of the company;
3. The material resources of the company;
4. The company's past contract records; and

5. The factors which may have affected or will likely affect whatever results the analysis may have shown about the sub-headings 1.-4. above.

1. The Company Structure

One important observation to be made about the authors (Ansoff, Hussey, Argenti, Steiner, and so on) referred to above, is that they seem to have ignored the importance of 'Company Structure' as an essential area to be considered in the internal appraisal of the company.

Yet, various researches have shown that the way a company is structured has profound effect on its performance⁽⁷⁸⁾. A major finding in the study by Lawrence and Lorsch⁽⁷⁹⁾ for example, was that effective organisations, defined in terms of growth in profits, sales volume, and return on investment, had structures and membership orientations that were suitable for the demands of their respective situations or tasks.

These "high-performing" organisations, however, were those with 'organic' or 'non-mechanistic' structures. Naturally, one is tempted to conclude that organisations with organic structures are more effective than those with mechanistic structures.

Such a conclusion however, although it generally may be valid, could be misleading in the sense that it could lead the firm to believing that in appraising itself, the company should emphasise the structure rather than the task to be performed, or the environment in which that structure will operate or is operating.

Magnusen⁽⁸⁰⁾ for example, has noted that while a variety of organisational designs or structures may be available to the firm, the management must use its own judgement to choose the most appropriate structure.

Johne⁽⁸¹⁾ has treated in great detail various forms of organisational structures as has been suggested by some writers on organisation and business policy.

However, it would seem that no conclusion is reached as to which structure is most effective for all types of tasks.

On the contrary, what the analysis of the works reveals is that, to be effective, the structure must be flexible enough to take into consideration the task, the people involved, and the environment in which the structure is to function.

This notwithstanding, the paucity of works on organisation structure with particular reference to construction raises the important question of whether the numerous works on organisation structures, which were undertaken for different purposes and in different fields, have any relevance in the construction industry.

This question is reinforced by the fact that in construction, most organisations are built up only to be destroyed later.

Consequently, it is argued that since most construction projects tend to be unique in one way or the other, the life of any particular organisational structure may depend on the length of time it takes the firm to complete the project for which the structure was made.

While this is generally true, we would be confusing two separate issues if this argument is accepted on its face value.

In the first place, we have to separate the structure of the firm as it exists, from the organisational structure which may be applied on a construction project which the firm is undertaking.

While it is true that the latter may be affected by the former, the former tends to be basically similar to structures found in organisations in other industries.

In this regard therefore, works on organisation structures in other industries are also relevant to the construction industry.

Organisational Structure defined

The structure of an organisation may be defined as the total of the ways in which the organisation

1. divides its participants into distinct tasks; and
2. seeks to co-ordinate tasks for achieving particular corporate objectives.

In other words, the structure of a company should facilitate the achievement of its specific objective(s).

It is therefore important for the construction firm to bear in mind that having a structure is not an end in itself, but is only a means to achieve an end.

In the construction industry, the end is, in most cases, getting the project finished on time and within quality and costs target⁽⁸²⁾. The sense of urgency is therefore there.

What the firm needs therefore is the right management judgement to determine the right structure that will enable it achieve its stated objectives.

2. The human resources of the company

Human resources is the greatest asset the company can have since it is people, rather than machines or buildings, that take decisions. Having the right and adequate human resources is

therefore essential for the firm's successful operation.

The company's human resources which determine its strengths and weaknesses in this regard, can be divided into two main groups; namely -

1. The employees, defined to include all operatives;
and
2. The management group.

The assessment of the company's position in terms of group 1. above bears close resemblance to what has already been discussed under 'labour' in the previous sub-section. There is therefore no need to repeat it here.

However, when we turn to the second group, the management group, different problems emerge.

Management group defined

Management group is used here to include all those with building and civil engineering skills, financial management skills, project management skills, data handling and information retrieval skills, marketing skills, cost control skills, and human relations management skills.

It should be obvious that most of these people are highly skilled professionals who may not be readily available on demand.

Secondly, the requirements of the construction customer may put an immense pressure on the management capability of the company. Relying entirely on the hope that new skills will be recruited could be very risky indeed.

There is therefore the need to find out whether the existing

skills in the company can provide a sound base for the execution of the contract which the company may wish to undertake.

3. Material Resources

The material resources of the company, as used here, refers to the company's stock of required materials, or the ease of availability of these materials to the company.

It has been pointed out earlier that in the developed Western economies, the required materials for most construction contracts are readily available.

This has three major implications. Incidentally, the first implication is a result of the nature of the developed Western economies, while the second and third implications are derivatives of the nature of the construction industry.

In the first place, the nature of the developed Western economies is such that most of the materials used in construction are available at competitive prices. Consequently, the construction company may not see the need to stockpile the required materials.

Secondly, in most construction contracts, materials to be used are specified by the customer, and there are chances that the specified materials may not be what the company has stockpiled.

Thirdly, most of the materials used in construction require relatively large storage facilities with cost implications.

Collectively, therefore, these reasons may lead the construction company to rely solely on sub-contractors and/or suppliers for their required materials.

However, if every construction company behaves exactly in this way, then it will place an immense pressure on the suppliers and/or sub-contractors, who may not be able to satisfy every company.

Obviously, some companies will be adversely affected in one way or another if they have nothing of their own on which they can fall back.

In analysing its materials resources therefore, it is important that the company should be aware of those implications and their attendant effects on the company.

4. The company's past contracts records

The evaluation of its past performance in construction calls for a detailed examination of contracts which the company may have executed and/or failed to win.

This should be done with the aim of identifying what effect the size, location, duration of the contracts as well as the customer may have had on the execution of the contracts in general, and the profits in particular.

This will place the company in a better position to compare the actual profits with the bid-markups for the contracts.

In a situation where the company is operating in more than one sector, the analysis will also enable the firm to have some ideas about what is likely to be the trend in profits in the sectors concerned.

It is also very important to examine the records about the contracts which the company failed to win. The main objective in such examination should be to establish why the company failed to win the contracts. This will then enable the company to take corrective measures in future contracts.

The analysis of the company itself is intended to enable the company to know exactly where it stands, in terms of its performance or capability in the past, present, and future contracts.

If this is properly done, the factors which may have been and are likely to be responsible for whatever results which the company may have got, will be identified.

Once this is done, the company can then take the appropriate decision concerning the market it wants to serve, or its future operations. It is in this sense that the whole process of company analysis is in itself a risk management strategy.

Conclusion

This section has attempted to establish that, although there has been some evidence to suggest that marketing has not been a common feature of the construction industry, 'marketing' is, in fact, relevant and useful to the companies operating in the industry.

It has also been shown that, if marketing, as a risk management function, is to produce its desired results, the construction company that is applying it must understand the market in which it is operating.

This understanding of the market can be achieved through a careful examination, or appraisal of its environment or external factors, which are likely to affect the company.

The company must also have a good knowledge about itself. This can be achieved by a careful analysis of the company.

This internal appraisal will enable the firm to identify its strengths and weaknesses, and so be in a better position to capitalise on its strengths, and avoid areas in which the firm is weak, and therefore likely to incur losses.

In this way, the risk management function of marketing can be utilised with favourable results.

REFERENCES

1. Institute of Marketing: the Construction Industry Marketing Group Report. (1970-71) op. cit.
2. Institute of Marketing: Construction Industry Marketing Group. (1970-71). Ibid.
3. Hislop, M, 'The Industry and the Market'. in Brech, E.F.L. Construction Management: Principles and Practice. Longmans, 1971, p 62.
4. Bowley, M, The British Building Industry, Cambridge Univ. Press. 1966.
5. Powell, C G, An Economic History of the British Building Industry, 1915-1979. The Architectural Press Ltd. London 1980.
6. Slack, J C, and Giles, R W, "Management Contracting in Civil Engineering, Institute of Civil Engineers, Proceedings, Part 1, Vol. 70. Aug. 1981, pp 381-391.
7. Emmerson, H, The Survey of Problems before the Construction Industry. H.M.S.O. 1964.
8. Banwell, G H, Placement and Management of Building Contracts. H.M.S.O., 1964.
9. The Wood Report 1975, H.M.S.O.
10. Banwell, G H, (1964) op. cit.
11. Bowley, M. (1966). op. cit.
12. Hislop, M. in Brech E.F.L. (1971). op. cit. p 69.
13. Office of the President: Report of the Ministerial Committee on causes of high costs of contracts in Nigeria (1981).
See also:
West Africa 5th July 1982 pp 1750-51
12th July 1982 pp 1812-15.
14. Hislop, M. in Brech, E.F.L. (1971). op. cit. p 70.
15. See for example, Brech, E.F.L. (1971), PP 70-72.
16. See for example, the argument in,
Baker, M J, (1981), op. cit. p 202.

17. See Calvert, R E (1981), op. cit.
18. Atkinson, I, Construction Management, Elsevier Publishing Coy. Ltd. 1971, p 27.
19. Adrian, J J, Business Practices for Construction Industry, Elsevier Publishing Coy. Ltd., 1971, p 71.
20. Morris, John, "Developing Managers for the Construction Industry" in Burgess, A.R. (ed.), Management in the Construction Industry, MacMillan, 1979, p 159 especially.
21. Maher, P R, Introduction to Construction Operations, John Wiley and Sons. N.Y. 1982.
22. See for example,
Hislop, M. in Brech, E.F.L. (1971) op. cit. p 69.
23. Brech, E.F.L. (1971) op. cit. Chapter 2.
24. Banwell, G H, The Placing and Management of Building Contracts, H.M.S.O., 1964.
25. Bowley, M. (1966)
26. Emmerson, H, The Survey of Problems before the Construction Industry, H.M.S.O.
1962, pp 8 & 9.
27. Parlett, D S, (ed.) Construction Industry. U.K., House Information Service Ltd., London. 1976.
28. Luder, O, 'Divisions in Construction Industry'
The Construction News, (Nov. 19 1981). p 2.
29. Laing, M. See his comment on this issue, in The Construction News. (Sept. 19 1981). p 2.
30. Adrian, J J, (1976) op. cit. p 70.
31. Jepson, W B and Nicholson, M P, Marketing and Building Management, Medical and Technical Publishing Coy. Ltd. Lancaster, 1972.
32. Jepson, W B, and Nicholson, M P, (1982), op. cit. Chapter 2.
33. Brech, E.F.L. (1971). Ibid.
34. See for example, Paish, F W, Benhan's Economics. (7th ed.). Pitman and Sons, Ltd., London. 1964. Chapter VI.

35. Brech, E F L (1971) op. cit. (In the Preface of the Book)
36. Harris, F and McCaffer, R, (1977) op. cit. p 180.
37. Institute of Marketing; the Construction Industry Marketing Group Report, Part 1. p 6.
38. Hislop, M in Brech, E F L (1971) op. cit. p 89.
39. Weld, C, Marketing Architectural and Engineering Services Van Nostrand, Reinhold Coy. N.Y. 1971.
40. The Construction News. April 29: 1982. p 3.
41. Adrian, J J, (1976) op. cit. p 110.
42. See, New Nigerian Oct. 7. 1982, p 16.
43. Rodger, L W, (1979) op. cit. p 59.
44. Adrian, J J, (1976) op. cit.
45. Francis, L (1980) op. cit. p 20.
46. 'Are all Your Marketing Staff qualified Professionally?' Institute of Marketing; Sponsorship Scheme for Companies. Pamphlet No. SSC/DIP./8301. 1983, p 2.
47. Baker, M J, Market Development, A Comprehensive Survey. Penguin 1983.
48. Institute of Marketing, The Construction Industry into the 90's, A Forecasting Exercise, June 1981.
49. Marketing 21/7/831, p 51.
50. Calvert, R E, Introduction to Building Management, Butterworths, 1981, p 96.
51. Edens, T C, "Fluctuations in Foreign Exchange Reserves, and in the volume of construction: The similarities between industrialised and non-industrialised countries in 1870-1914 and their divergence in 1955-1968." Unpublished Ph.D. 1972, Michigan State University.
52. Corey, R E, (1976) op. cit. pp 40-41.
53. Webster, F.E. (1978) op. cit. pp 21-17.
54. Winkler, J, Winkler on Marketing Planning, Cassel/Associated Business Programmes, London, 1972.

55. Webster, F E, (1978) Ibid.
56. Ames, C, (1970) op. cit. pp 93-102.
57. Harris, F and McCaffer, R (1977) op. cit. pp 118-121.
58. Maher, P R (1982) op. cit. Chapter 1.
59. Used synonymously with 'design and build', or 'turn-key' contracts.
60. Boland, J, 'Go out and Sell' The Construction News. April 1: 1982. (Scotland. Page 1)
61. Adrian (1976) op. cit. p 77.
62. Maher, P R, (1982) Ibid.
63. Burns, C W et al, "Contractual Relationships in Construction". Journal of the Construction Division, (ASCE), Vol. 101 No. C04. Dec. 1975.
64. Bonny, J B and Frein, J P (eds.) Handbook of Construction Management and Organisation, Van Nostrand, R. Coy. N.Y. 1973, p 47.
65. See for example, Harris, F and McCaffer, R, Modern Construction Management, Granada Publications Ltd., London 1977, Chapter 8.
66. Harris, F and McCaffer, R (1977) op. cit., p 127.
67. Marketing (April 15 1982) p 24.
68. Financial Times. Nov. 2 1982.
69. Scottish Construction into early 1980s. NEDO. Feb. 1971.
70. Construction Industry Prospects to 1979. NEDO. Feb. 1971.
71. Ansoff, H I, Corporate Strategy, McGraw Hill 1965, (Chapter 5).
See also - Ansoff, H I, Business Strategy, Penguin Books 1969.
72. Argenti, J, Systematic Corporate Planning, Thomas Nelson and Sons Ltd. 1981.
73. Steiner, C A, Top Management Planning, MacMillan, 1969.
74. Hussey, D E, Introducing Corporate Planning, Pergamon Press Ltd. 1979.

75. Ewing, D W, The Practice of Planning, Harper and Row, 1968.
The Human Side of Planning. MacMillan. 1969.
76. Walley, B H, How to apply Strategy in Profit Planning, Business Books, 1971.
77. Ackoff, R L, A Concept of Corporate Planning, Wiley Interscience. 1970.
78. Magnusen, K O, Organisational Design, Development and Behaviour, Scott, Foresman and Coy. 1977.
79. Lawrence, P and Lorsch, J, Organisation and Environment Harvard Univ. Graduate School of Business Admin. 1967 Chapters 2-6.
80. Magnusen, K O, (1977) op. cit. p 25.

See also
Miles, R E, Snow, C C and Pfeffer, J, Organisation-Environment: Concepts and Issues, Industrial Relations Vol. 13. (Oct. 1974) p 264.
81. Johne, F A, "Innovation, Organisation and the Marketing of High Technology Products", Ph.D. Thesis. Department of Marketing, Strathclyde Univ. 1982.
82. Morris, J, "Developing Managers for the Construction Industry", in Burgess, A R (ed.) (1979), op.cit., pp 158-9.

CHAPTER FIVE

CHAPTER FIVE

Introduction

In the previous Chapter, we stated that some of the features of the construction industry were bound to have some effect on the marketing strategy which a construction firm could apply.

Consequently, we insisted that the overall understanding or knowledge of the construction industry was essential for an effective marketing strategy.

That view is extended in this Chapter.

The Theme

The main proposition of this Chapter is that buying in the construction industry evolves through phases, each with its own inherent risks.

What this suggests is that risk in construction contracts is spread over the buying phases, and not concentrated in one phase as the bidding models would have us believe.

Therefore, what the construction company requires is to analyse these buying stages so that it will be able to:- (a) know when to apply its marketing strategy and which strategy is most appropriate;

(b) identify risk areas in the process, and thus the targets on which more efforts should be concentrated;

and

(c) identify the steps which must be taken to respond effectively to the needs of the customer.

On this basis therefore, our thesis is 'that analysis of the critical phases through which a construction contract decision evolves, is essential for effective management of risks in the contract.

How the Chapter is Organised

The Chapter is divided into two sections:-

Section One

This section introduces a general model of buying decision process in the industrial market and the relevance of this model to buying decision in the construction industry.

In general, a standard construction contract evolves through phases similar to what obtains in a typical new-buy decision process for an industrial product.

In this regard, while noting that the difference between a new-buy decision process for a construction product is largely a matter of the number of buying decision phases involved, the section concludes that, in essence, both evolve through phases, culminating in the commitment phase.

Section Two

Section Two introduces the bidding phase. It notes the Marketing implications of this phase and points out that this relatively simple buying decision phases is so crucial for a successful selling decision that bidding models have been developed to deal with the inherent risks in the bidding decision.

The section however, concludes by noting that the bidding models themselves, though useful as a form of risk management

strategy, do not seem to provide adequate cover for all the risks arising in a construction contract.

Introduction to Section One

The main objective of this Section is to demonstrate that a building construction contract evolves through stages, similar to those in a new-buy decision for a typical industrial product.

Each of the buy phases has its own inherent risks. However, the nature of the construction industry is such that some of the buy phases are more crucial than others for the success of the firm's marketing strategy.

Section One
Buying Decision as a sequential Process

Buying decisions, as Webster has pointed out, do not just happen.

"They represent a complex set of activities engaged in by many members of the buying organisation and result in a commitment to purchase goods and services Buying is not an event. It is an organisational decision-making process, the result of which is a contractual obligation."⁽¹⁾

As an organisational decision-making process, buying decisions in the industrial market evolve through stages on a continuum. This has been demonstrated by various studies and models of organisational buying behaviour.

Baker⁽²⁾ for example, sees the purchase decision as "a sequential process" in which certain criteria are applied to alternatives in order to arrive at a final choice.

This is evident in his sequential process model where the whole process of buying decision is presented as being triggered by the Enabling Conditions (EC).

The model itself is expressed notationally as follows:

$$P = f[SP, (PC, EC, (TA-TD), (EA-ED), BR)]$$

where

P = purchase

f = a function (unspecified) of

SP = selective perception

PC = precipitating circumstances

EC = enabling conditions

TA = technological advantages

TD = technological disadvantages
 EA = economic advantages
 ED = economic disadvantages and
 BR = behavioural response.

Naturally, the decision maker evaluates [(TA-TD) and (EA-ED)] involved as he moves from one buying decision phase to another. This enables him to identify the potential risks and so take appropriate action (BR).

Webster and Wind⁽³⁾ have also demonstrated in their model that basically, a buying decision process evolves through four procedural stages. These stages were defined as follows:-

- (1) Recognition of the problem or need ; when the customer becomes aware that he has a problem to be solved, or a need to be met;
- (2) organisational assignment of buying responsibility and authority;
- (3) search procedure for identifying product offering, and establishing selection criteria; and
- (4) choice procedure for evaluating and selecting among alternatives.

It is obvious that the buying decision process starts with the recognition or the awareness that the organisation has a problem which can be solved through purchase.

Consequently, some persons are assigned the responsibility and, by implication, authorised to search for the best way of solving the problem or satisfying the need.

The search process itself calls for collection and evaluation of information so that a final buying decision can be made among alternatives.

Obviously, such a process, involving several people and influenced by several factors, leading to a final contractual obligation, cannot be described as 'a point-decision', or just an event.

Nielsen⁽⁴⁾ also demonstrated in his model that buying decisions evolve through stages. He maintained that since buying decisions are by nature incremental, decisions taken at an earlier stage tend to form the basis for all subsequent decisions.

In this regard each subsequent stage in the decision process involves incremental commitment. As far as Nielsen is concerned such stages are basically four:-

- (1) The general buying decision, which includes the decision to initiate a project. Since this is likely to be the first stage in the buying decision process, it may not, and often does not necessarily arise from earlier decisions.
- (2) The concrete buying decision, which consists of the selection of a definite project, including its objectives, constraints and specifications.
- (3) The selection decision which is concerned with the selection of the most appropriate product and the suppliers; and finally,
- (4) The technical buying decision which involves the actual mechanics of the transaction. This includes the final price, other terms of contract, and the drawing up of the contract itself.

Another model which shows also that a buying decision evolves through stages is that of Sheth.

The model's emphasis on the role of information in buying decision process also brings in the relationship between the concept of perceived risk and the search for and utilisation of information.

Though not explicitly stated, the operational setting of the model bears a strong indication of a buying decision process evolving through stages.^(4a)

Perhaps the most comprehensive and supporting evidence that buying decisions evolve through stages is presented in the buy-grid model by Robinson and Faris⁽⁵⁾.

This model is based on the findings of a two-year research work in three different companies in the United States. The findings of the study led the researchers to suggest that industrial buying decision process evolves through EIGHT sequential stages.

However, the authors also recognised that some of these stages can be jumped or combined, depending on the nature of the decision which they divided into three distinct types to form the 'buy class'.

From the evidence provided so far, there is no doubt that buying decisions in the industrial market in general, evolve through stages.

This is especially the case in new-buy situations. The starting point in most cases however, is the recognition by the decision maker that he has a problem to be solved, or a need to be satisfied.

The Customer's Importance

The manner in which a buying decision process starts has obviously placed the customer in the industrial market in general, and in the construction industry in particular, in a very crucial position.

This is because, as the buying models themselves have demonstrated, it is the customer who, in most cases, determines:-

- (i) what he believes the problem is;
- (ii) how and when the problem should be solved;
- (iii) who should participate in the solution of the problem; and
- (iv) whether the solution thus provided has actually solved his problem satisfactorily.

In essence, it is these four conditions that have provided the basis for the buying decision process. The nature of the buying process however depends on the type of the buying situation.

We shall therefore turn to consider the buying situations in the industrial market, and try to show which situations are relevant or not, in the construction industry as it concerns our study.

Buying Situations

Some available studies⁽⁶⁾ in industrial marketing have shown that the problem of the industrial buyer may arise from any of the following three main situations:-

- (1) The Straight Rebuy Situation
- (2) The Modified Rebuy Situation; and
- (3) The New-buy Situation.

Each of these three situations has some risk implications, both for the buyer and the seller.

As far as the buyer is concerned, it is generally accepted that his main aim of buying is to satisfy his needs. In this sense, it could also be argued that the end result in each of the three buying situations above is the same.

However, this is not to say that the problems presented by the situations are also the same. In most cases the risks presented by each of the buying situations tend to differ considerably. This also implies that the strategies for managing such risks would also be different, at least to some degree.

In the construction industry, it would seem that most buying decision are for the New-buy or New-Task situation. To some extent, the modified Rebuy Situation may also be applicable.

In view of this fact therefore, the New-Buy situation forms the basis of the discussion in this section and the Chapter as a whole.

However, while the emphasis still remains on the New-buy situation, some discussion of both the Straight Rebuy and Modified Rebuy Situations seems relevant here for the following reasons:

In the first place, a discussion of the Straight Rebuy situation will enable the reader to understand why it is not of much relevance to the main buyer of a construction project, since each construction project tends to be unique, at least in some degree.

Secondly, in some cases, the New-buy situation may in fact arise from a modified Rebuy situation. Besides, some of the factors which may lead to Modified Rebuy Situation, have some important risk implications which are relevant to the construction industry.

Straight Rebuy Situation

Basically, this refers to a situation where the purchase of an item is as a result of recurring requirement.

Normally, most of the groundwork and required information must have previously been undertaken. The purchase is therefore based on the procedure which may have been established in the buying company to handle such routine decisions.

Straight Rebuy decisions therefore exemplify the application of the "Learning Curve" concept, and are therefore similar to what Howard and Sheth⁽⁷⁾ described in their model as "Routinized Response Behavior".

Risk implications

Since Straight Rebuys are 'Repeats' of a decision taken before, the decision maker is assumed to have taken all the necessary steps to manage any inherent or potential risks at the time the decision was first made.

Consequently, those making a straight rebuy decision tend to perceive relatively low levels of risk in their decisions⁽⁸⁾.

The result is that 'source loyalty' tends to be a major characteristic of Straight Rebuy decisions.

Obviously, this cannot be described as a common feature of buying decision making in the construction industry, except where such decisions deal with supply of materials or other related items for a construction project.

As far as the client is concerned therefore, the situation he faces when he is deciding to buy a construction product is quite different.

Very often it is a new situation, much more complex, and cannot therefore be described in any way as a Straight rebuy situation.

Modified Rebuy Situation

A modified rebuy situation may be described as a "limited Problem Solving" in a buying decision making process. ⁽⁹⁾

Unlike Straight rebuy situation, the distinguishing characteristic of the modified rebuy situation is that the decision maker feels that some kind of benefits could be derived from a re-evaluation of alternatives.

In most cases, the requirement for the type of product may have already existed in the buying firm, or organisation.

In addition, the buying alternatives themselves are known, only that either the situation has sufficiently changed to require:-

- (a) alterations in the buying procedure or terms of purchase, or
- (b) a general reassessment of the whole situation.

Factors which may lead to Modified Rebuy

A number of studies have shown that a variety of factors may lead to a modified rebuy situation.

Therefore, as Robinson and Faris have observed, generalisations about them are difficult and may sometimes be misleading.

However, four main factors may be identified. These factors include-

- (1) a change in the buyer's need which may lead to changes in specifications of the item originally required;
- (2) genuine efforts on the part of those concerned to improve a given end product;
- (3) the buyer's effort to search for alternative sources that could lead to cost savings for him; and
- (4) the buyer's dissatisfaction with the supplier's performance.

The last factor (4) seems to affect other factors as well, and it is critical in a normal customer-supplier relationship.

It is in this regard that Hutt and Speh⁽¹⁰⁾ seem to have seen a modified rebuy decision primarily as a result of the customer's displeasure with the performance of the existing supplier.

Applied to the construction industry situation, the factors can be redefined in terms of the following:-

- (i) change of customer's need or requirements;
- (ii) product performance;
- (iii) cost savings; and
- (iv) contractor performance.

Risk implications

If we hold 'terms of purchase' constant, the alternatives open to the buyer in a modified rebuy situation can be classified into three main options:-

- (1) he can buy a 'new'* product from the existing supplier, in this case, the contractor,
- (2) he can buy a 'new' product from another supplier; and
- (3) he can buy the same product, but from another supplier.

Option (1) represents a situation where the original specifications of a product are changed so that technically the resulting product is no longer what the buyer had originally wanted.

However, the existing contractor is still able to produce the 'new' product for the customer.

Option (2) represents a situation where the change in specifications is such that it renders the existing construction company unable to produce the product.

In this case the parties concerned may decide to call in another contractor after the first one has been paid off.

Option (3) typifies a situation where the construction company lacks the required capability to execute the contract.

This may lead to outright termination of the contract by the customer, who may then re-award the same contract to another company, or, by agreement, the first contractor himself may hand over the contract to another construction firm, as Stevin did in the Zilwaukee Bridge Contract in the United States recently⁽¹¹⁾.

* 'new' is defined here as a product resulting from a specification that have been altered so that, although the product may be basically the same, it is not exactly the same product which would have resulted, had the specifications not been altered.

In Britain it is rare to have such situations as in options (2) and (3) above, though numerous examples abound in Nigeria.

Option (1) however, is common only that although the resulting product is technically a different product from the one which would have been produced had the original specifications not changed, the product itself is not normally perceived by the buyer as a 'new' or different product.

What all this means is that, as it is used in industrial marketing, the term 'modified rebuy' does not seem to have a recognised application in the construction industry as far as the buying situations facing the client are concerned.

It may be observed that hotel chains, government agencies, and other organisations may commission a number of similar structures in different locations, which, to some extent, is a form of modified rebuy.

However, such cases are exceptions rather than the rule. Therefore, the buying situation that is of great relevance to the buying decision process in the construction industry is the New-buy situation.

The New-Buy Situation

The New-buy situation is a 'first time' purchase which results from a need that has not arisen before.

The customer in this case, has little or no relevant experience upon which he can draw.

Two major implications seem to have emerged from this. In the first place, the fact that the customer has no previous experience upon which he can draw, as far as this particular purchase decision is concerned, suggests that he would require a great deal of relevant information to enable him to make a decision⁽¹²⁾.

A number of studies⁽¹³⁾ have shown that the amount and type of information which the buyer will require depend on the nature of the product and the level of expenditure involved. In essence, this is related to the buyer's degree of perceived risk⁽¹⁴⁾.

Therefore, New-Task or New-buy decisions present a situation where the complete stages of buying decision process evolve. These stages will now be stated and discussed.

The buying-decision stages

It has already been established that buying decisions in the industrial market evolve through stages.

What is not yet certain is the number of stages through which a buying decision process, in a new-buy situation evolves.

Some authors⁽¹⁵⁾ have suggested four, while others⁽¹⁶⁾ are not definite.

In general however, it would seem that the studies by Robinson and Faris⁽¹⁷⁾ out of which a model was developed, have shown convincing evidence that the buying decision in the industrial market evolves through a process which can be divided into eight stages or phases.

These stages are as follows:-

- (i) anticipation or recognition of the problem or need
- (ii) determination of the characteristics and quantity of the needed item
- (iii) description of the characteristics and quantity of the needed item
- (iv) search for and qualification of potential sources
- (v) acquisition of proposals
- (vi) evaluation of proposals and selection of sources
- (vii) selection of an order routine; and
- (viii) performance feedback and evaluation.

Relevance to the Construction Contract

Naturally, the important question which arises is whether these buying decision stages are of any relevance in the buying decision process in a construction contract.

A careful examination of the comparison of the buying decision stages below, Figure 1, as well as the RIBA Plan of Work which sets out the stages and how a buying decision process for a construction product should proceed, would reveal that, certainly, the buying decision stages stated above, are relevant in the construction industry.

However, because of the nature of the industry, the number of these decision stages has been reduced.

This notwithstanding each buying decision stages should be seen, not as a point at which only one event takes place, but rather as a decision area within which several other decisions and activities take place.

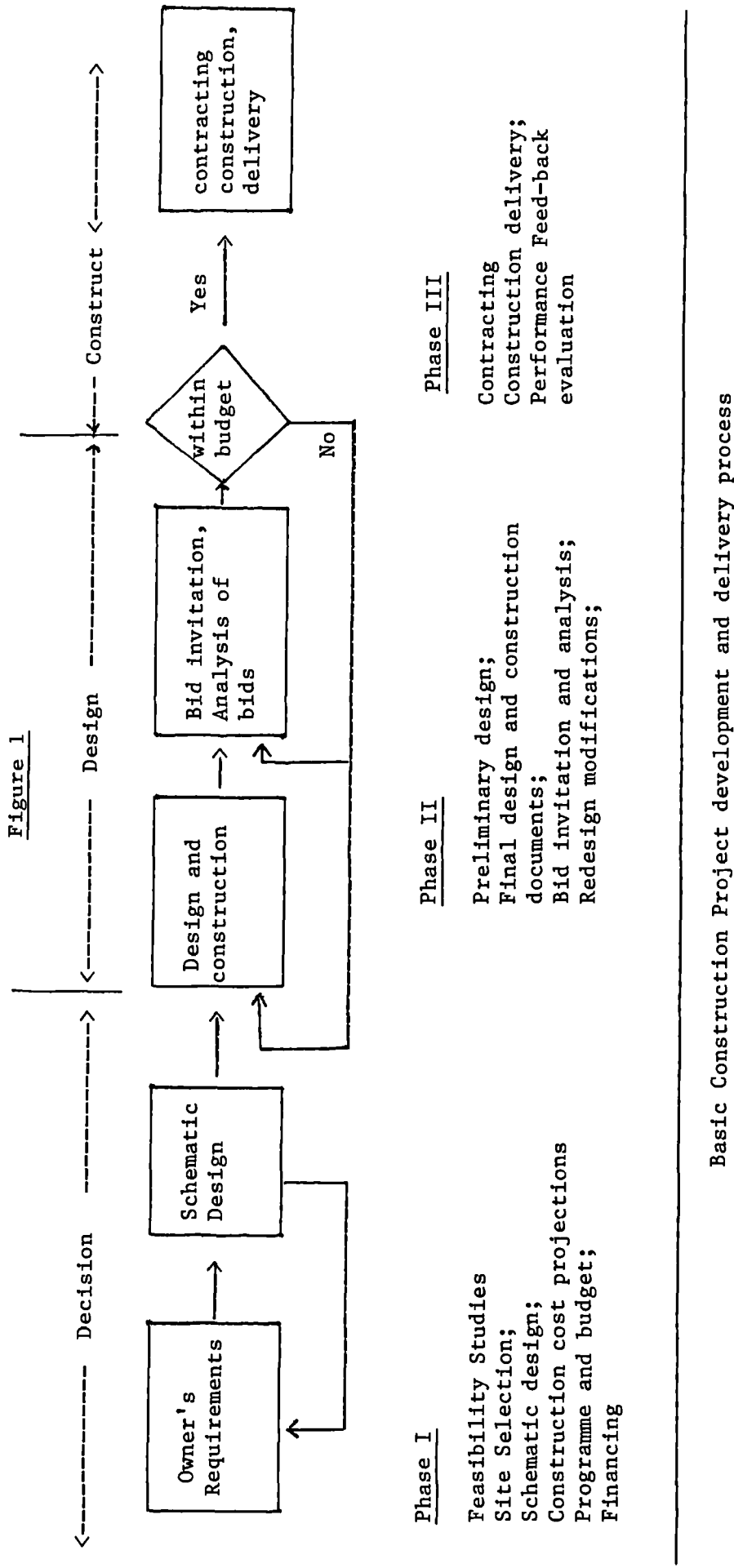
This can be seen from both the comparison of the buying decision stages, and Figure 1, which provides a more detailed illustration of some of the activities and decisions involved at various stages.

A COMPARISON OF THE BUYING-DECISION STAGES

Stages in a New-Buy Decision Process

For Industrial Product	For Construction Product
(i) Anticipation or recognition of the problem or need	Anticipation or recognition of the problem or need
(ii) Determination of the characteristics and quantity of the needed item	Design Stage
(iii) Description of the characteristics and quantity of the needed item	
(iv) Search for and qualification of potential sources	Prequalification stage (since most customers have a list of prequalified contractors, this stage may not occur in every buying decision process).
(v) Acquisition of proposals	Bidding Stage
(vi) Evaluation of proposals and selection of sources	Evaluation of bids and selection of contractor (s). (Negotiation could be a separate stage or included in this stage)
(vii) Selection of an order routine	Commitment Stage
(viii) Performance feedback and evaluation	Performance feedback and evaluation

A Comparison of the Buying-Decision Stages



Phase I

Feasibility Studies
 Site Selection;
 Schematic design;
 Construction cost projections
 Programme and budget;
 Financing

Phase II

Preliminary design;
 Final design and construction documents;
 Bid invitation and analysis;
 Redesign modifications;

Phase III

Contracting
 Construction delivery;
 Performance Feed-back evaluation

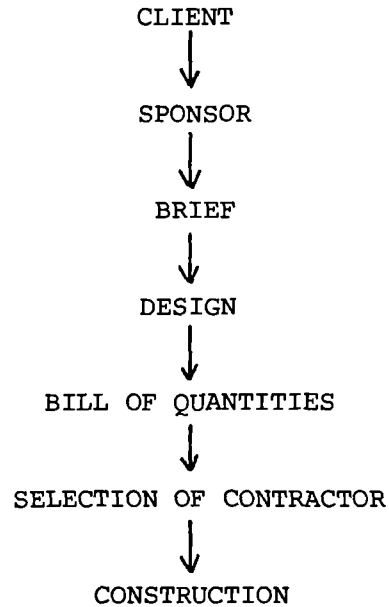
Source* Adapted from: Goldhaber, Chandra and Macedo (18).

OUTLINE PLAN OF WORK

Stage	Purpose of work and Decisions to be reached	Tasks to be done	People directly involved	Usual Terminology
A. Inception	To prepare general outline of requirements and plan future action.	Set up client organisation for briefing. Consider requirements, appoint architect.	All client interests, architect	Briefing
B. Feasibility	To provide the client with an appraisal and recommendation in order that he may determine the form in which the project is to proceed, ensuring that it is feasible, functionally, technically and financially.	Carry out studies of user requirements, site conditions, planning, design, and cost, etc. as necessary to reach decisions.	Clients' representatives, architects, engineers, and QS. according to nature of project.	
C. Outline Proposals	To determine general approach to layout, design and construction in order to obtain authoritative approval of the client on the outline proposals and accompanying report.	Develop the brief further. Carry out studies on user requirements, technical problems, planning, design and costs, as necessary to reach decisions.	All client interests, architects, engineers, QS and specialists as required.	Sketch Plans
D. Scheme	To complete the brief and decide on particular proposals, including planning arrangement, appearance, constructional method, outline specification, and cost, and to obtain all approvals.	Final development of the brief, full design of the project by architect, preliminary design by engineers, preparation of cost plan, and full explanatory report. Submission of proposals for all approvals.	All client interests,	
Brief should not be modified after this point				
E. Detail	To obtain final decision on every matter related to design, specification, construction and cost.	Full design and every part and component of the building by collaboration of all concerned. Complete cost checking of designs.	Architect, QS engineers, and specialists, contractor (if appointed).	Working Drawings
Any further change in location, size, shape, or cost after this time will result in abortive work.				
F. Production Information	To prepare production information and make final detailed decisions to carry out work.	Preparation of final production information, i.e. drawings, schedules and specifications.	Architects, engineers and specialists, contractor (if appointed).	
G. Bills of Quantities	To prepare and complete all information and arrangements for obtaining tender.	Preparation of Bills of Quantities and tender documents.	Architects, QS, contractor (if appointed).	
H. Tender Action	Action as recommended in paras. 7-14 inclusive of 'Selective Tendering'*	Action as recommended in paras. 7-14 inclusive of 'Selective Tendering'*	Architects, QS, engineers, contractor,	
J. Project Planning	Action in accordance with paras. 5-10 inclusive of 'Project Management'*	Action in accordance with paras. 5-10 inclusive of 'Project Management'*	Contractor, sub-contractors.	Site Operations
K. Operations on Site	Action in accordance with paras. 11-14 inclusive of 'Project Management'*	Action in accordance with paras. 11-14 inclusive of 'Project Management'*	Architects, engineers, contractors, sub-contractors, QS, client.	
L. Completion	Action in accordance with paras. 15-18 inclusive of 'Project Management'*	Action in accordance with paras. 15-18 inclusive of 'Project Management'*	Architects, engineers, contractor, QS, client.	
M. Feed-Back	To analyse the management, construction and performance of the project.	Analysis of job records. Inspection of completed building. Studies of building in use.	Architect, engineers, QS, contractor, client.	

* Publication of National Joint Consultative Council of Architects, Quantity Surveyors and Builders.

Whittaker⁽¹⁹⁾ obviously drawing from a Tavistock Report on Building Construction⁽²⁰⁾, presented the following stages in a buying-decision process of a building project:-



The Tavistock Report itself defined a Building Process as:
 "The whole series of activities required between the initiating point of a client's need and the production of a building to fulfil that need".

Obviously, the buying decision process as illustrated by Whittaker above, does not cover "the whole series of activities required" in a building construction process. Rather, it seems to represent only a rough description of the process.

What it shows is that the client, having determined that he has a need for a building, contacts the sponsor.

The sponsor could be an organisation, an architect, a contractor, or any person who is connected with the construction industry.

Together with the client, the sponsor draws up a brief of the client's needs or requirements.

The brief itself may be a mere discussion between the client and the sponsor during which the sponsor stores up unrecorded ideas in his head, or it could be a detailed written description of the required building, or it may be anything else.

After the brief is completed the specialist designers, such as the soil engineers, services engineers, architects, structural engineers are employed to carry out the detailed design work.

From the design, a bill of quantities is prepared. A contractor is selected to construct the required facility in accordance with the contract specifications.

This brief description of the buying process in a building construction obviously fits in well with the RIBA Plan of Work (21).

No doubt the process appears simple, straightforward and, as the Tavistock Study described it, formalised.

However, anyone who is familiar with the construction industry would agree that the so-called 'formalised system' only represents how the construction process should function; not how it actually does.

For instance, the sequential finality of the buying-decision stages described above, is hardly present in an actual construction project.

There is also no doubt that a careful examination of the buying decision stages will show that their evolution during a

construction purchase decision is fraught with risk to both the seller and the buyer.

Problems encountered on construction sites, wrong estimates, and changes in specifications by clients, all provide avenues for serious risks which cannot be ignored.

We shall therefore turn to discuss these buying decision stages so that their risk implications can be identified.

However, before doing that, two things must be noted. In the first place, whether the sequence involving all the stages is followed or not will depend on the factors and the nature of the buying decision.

Secondly, it would be unrealistic to expect the seller to devise strategies which will deal effectively with all the buying stages in a buying decision process. It is therefore expected that more emphasis is/should be placed on the focal points.

Focal Points

There is some evidence⁽²²⁾ to suggest that within the buying decision process, certain decision stages, which are in themselves decision areas, are of critical importance to both the buyer and the seller.

These stages have been referred to by various authors as 'key decision points'⁽²³⁾ or as 'Focal Points'⁽²⁴⁾ in buying activity.

Any of these points however, could turn into what Davison has described as 'a centre of gravity'⁽²⁵⁾.

The basic tenet of this concept is that during a buying

decision process, a particular stage or a combination of them could become the centre of gravity or a pivot upon which all other activities will tend to evolve and adapt themselves.

It is however, generally agreed that what may constitute a critical phase depends on the type of the buying situation and the decision being made.

In the construction industry, the following four key decision areas have, nevertheless, been identified as the most likely critical points in a buying decision process for the buyer, and so in the selling decision process for the seller

- (1) The Precipitation Stage
- (2) The Product design/specification stage
- (3) The contractor selection stage (which combines bidding and/or negotiation)
- (4) The commitment stage (which combines contracting and the execution of contract).

However, since these key decision phases are themselves parts of the overall buying decision phases, they will be discussed within the stages in which they fall.

With this background in mind, we can now look at the buying decision phases as they apply to a construction contract.

Anticipation or Recognition of the Problem or Need

A careful look at all the buying decision processes we have already presented, would show that, in general, the whole process of buying in the construction industry is 'triggered' by the customer recognising that he has a problem which can be solved.

In some cases however, the buying decision process can also be set in motion by a potential seller, who may anticipate, precipitate a need, or recognise that the need for a particular product or service exists in the buying organisation. This enables the seller to make some effort to convince the customer that such need can be satisfied through the purchase of a particular item.

Implications for Marketing effort

Two related major implications seem to have emerged from this. In the first place, the customer must anticipate or recognise, or be made to recognise, that he has a problem or need to be satisfied.

Secondly, the customer must recognise and accept or be made to recognise and accept, that this problem can be solved through a purchase of some item.

This stage has been referred to by some authors as the 'precipitation stage'. The importance of this stage has already been noted.

However, the stage is of critical importance to the seller in the sense that his ability to identify it may be of tremendous benefit to him because of the following reasons.

- (1) It will enable him to understand the customer's need and possibly precipitate it through more marketing effort, and
- (2) This will place the seller in an advantageous position over his competitors, with positive effect on the subsequent stages of the process.

Thus, the overall advantage to the seller is that it may enable him to understand much better not only the nature of the

need of the customer but also the nature of the risk involved.

This should place him in a better position to make more effective planning decision, and thus develop a more effective strategy to manage potential risks.

Unfortunately, it could be observed that, although there is some evidence to suggest that some marketing effort is useful at this stage, and has in fact been successfully applied in some cases, the manner in which most construction contracts are let seems to have rendered early involvement of the seller, in such contract, less useful than it should be⁽²⁶⁾.

Design Stage

The design stage combines stages (ii) and (iii) in the buying decision phases suggested by Robinson and Faris⁽²⁷⁾.

As it has already been noted, this is one of the most critical buying decision phases. It is in this phase that the characteristics and quantity of the required item are determined, described, or specified, and translated into a document which forms the guidelines upon which further actions by all those concerned must be based.

Thus, the design or specification stage may influence not only the nature of the required item, but also the entire process.

The specifications themselves could be:

- (a) performance specifications, stating clearly what the item is intended to do and must do; or
- (b) attributes specifications, stating what attributes the product must have.

Some available studies⁽²⁸⁾ though not directly in construction, have shown that at this stage, the buyer is more concerned about performance specifications, since the main reason for the purchase of the item is to solve a particular problem or meet certain requirements.

Risk Implications

The importance of the design/specification stage stems from, inter alia, the fact that a wrong design or inadequate specifications of the required item may lead to the following types of risks:

- (a) performance risk;
- (b) Alternations or additions risks; (variations).

These risks affect both the customer and the seller, though the specific effect on each of them may be different. These risks will now be treated in greater detail. But first, let us start with the customer.

Performance Risk

It has earlier been stated that the main aim of the customer in buying a construction product is to satisfy a particular need or solve a particular problem.

However, the customer stands the risk of not achieving this objective if the specifications are inadequate or the design is wrong or faulty.

Performance risk therefore, is one of the risks which the customer himself may face in his buying decision process.

In the construction industry, this may be particularly important in the sense that, in most cases, 'design is divorced from production', and so the customer may not be justified to turn round and blame the seller for the condition which he himself has created.

Attributes Risk

It has been found in some cases that certain product attributes which may be specified in a required construction product may not be essential after all.

However, these non-essential attributes may increase the cost of the product. This wasteful buying can be avoided by the use of value engineering which provides a careful analysis of the specifications or even the design, and the actual need which the product is required to meet⁽²⁹⁾.

Where this important point is ignored, the customer may stand the risk of paying for the product attributes which he does not really need as a solution to his problem.

Alterations and/or additions risk

The risk which the customer may face as a result of alternations or additions could be serious indeed. However, this depends on two main factors:

- (1) It will depend on the stage in the development of the product itself. For instance, the risk may be greater where the alterations occur when the product is about to be completed, especially if this is a major alteration or addition.
- (2) It will depend on the nature of the alteration. For instance, alterations or additions which involve the foundation, and

which require a building, almost complete or completed, to be demolished before such alterations/additions can be effected, could be very expensive indeed⁽³⁰⁾.

There is however, some evidence to suggest that alterations/additions risks tend to be "issues specific" and so generalisations on them may be misleading.

What is not misleading however is that there is a need for the customer to analyse his designs and/or the specifications of the required product to ensure that they represent what his needs really are before committing them for the actual production of the product.

Risks to the Seller

What affects the seller in a construction project is also most likely to have some effect on the customer.

However, it is the seller, the construction firm, that may bear more of the risk because, as we have seen, it is the buyer that sets the whole process in motion. He can also stop it!

However, because of the legal implications of a contractual relationship between the buyer and the seller, such drastic actions are trimmed to the minimum, and are rare here.

Nevertheless, the seller may be affected by the following risks in the following ways:

Performance risks

There are two types of performance risk and it is necessary to make a basic distinction between them.

- (1) the first type of performance risk arises from the performance of the contractor, the seller, on the contract. It is this type of risk that a performance bond is normally a derivative.
- (2) The second type of performance risk arises from the performance of the product for a specified period after it has been completed. This type of risk is normally associated with retention moneys or clauses ^(31.)

Either of these two cases can affect the seller, the construction company.

Retention moneys

A substantial number of construction contracts have a retention clause, which allows the customer to retain a part of the payments to the construction firm until after the product is completed and its performance found satisfactory during a specified period.

In Britain this specified period is normally twelve months in Scotland and six months in England.

Although this money may be paid back to the firm at the expiry of the retention period, this may not be so where the performance or the product is found or judged to be unsatisfactory.

Alterations/Additions risk

The specific type of risk which alterations/additions can present to the seller depends on two things:

- (1) who is responsible for the alterations/additions. For instance, alterations /additions caused solely by the customer will also most likely lead him to bear the responsibility which may arise from such alterations/additions.

- (2) The wording of the contract, indicating in clear terms what shall be done in event of any alterations or additions.

In general terms however, the risks associated with alterations or additions arise from the fact that they may create conditions which may render the seller technologically incapable of meeting the customer's requirements or target date.

In the latter case, it is the customer who may bear more of the effect of late delivery, especially if the product is supposed to be used for commercial purposes.

As for the seller, even where the effect on him is limited to the extension of time on the project, it may not be of much benefit to him especially if the marginal gains of extension, together with commitment of his resources on the project, are not good enough to compensate for the marginal cost of the extension or gains which could have been made elsewhere.

Alterations/additions therefore, may constitute a risk both to the buyer and the seller.

Situational Factors

There is no doubt that the design stage is critical to both the seller and the buyer. However, it is important to point out that the manner in which the construction company, the seller, is affected by the design stage may depend on the following three main situational factors:

- (1) Whether it is the seller who has led the customer to recognise that he has a problem which he, the seller can solve;
- (2) Whether the customer recognises he has a need to be satisfied but calls in the seller to assist him work out the best way of satisfying the need;

- (3) Whether the seller has been invited to become involved only after the product has been designed.

Each of these situations presents different problems to the seller, and so the demand for the assessment of the risks involved is equally different.

However, situations (1) and (2) tend to present similar problems though this again will depend on the level of 'shifts' between the buyer and the seller, possibly during the negotiations that may follow.

Situation (3) represents competitive bidding contracts where the customer has already undertaken the design of the product. AS we have already noted, the customer may not be justified to blame the seller for a faulty design which the customer himself may have made.

It seems therefore that the seller is more likely to assume heavier responsibility for designs in situations (1) and (2).

Pre-qualification stage

This stage may be divided into two types. The first type may be defined as a situation where the customer invites bids for a contract with the objective of selecting from the submitted bids a number of firms so that he can either

- (a) negotiate with them and make his final choice; or
- (b) request them to submit their final bids out of which he makes his choice decision.

The second type consists of a situation where the potential sources are pre-qualified. Most construction customers keep an

approved list of contractors who have been prequalified after a screening exercise.

This may take the form of the prospective customer requesting a number of construction firms to submit details about their experience, their capacity, bankers and so on.

On the basis of the information supplied, a list of those found suitable or qualified for the types of work which the client normally lets out, is made.

This list becomes the main source of information about contractors to which the customer can easily turn when an invitation for bids for a contract is to be sent out.

The list itself may be revised from time to time so that more contractors may be included and/or others dropped in the light of the customer's experience.

Thus, the basic difference between the two types of prequalification is that, while the first type is normally a part of a process for one particular contract, the second type provides information which may not aim at just one particular contract, but the general competence and suitability of the firms.

Implications for Marketing effort

Birse⁽³²⁾ has recently observed that the traditional procedure of awarding the majority of contracts through competitive bidding has virtually led to the restriction of the contractor's selling effectiveness to prequalification to tender.

In the light of this observation therefore, the implications of both the first and second types of prequalification should be

seen by the firm as a major marketing exercise which requires a concerted marketing effort.

Take for example: the major marketing implication of the second type of prequalification is that, since this is undertaken with the specific objective of providing information for the customer about what each firm can do there may be no need for the stage to be included in every buying decision process in a construction contract.

This increases the need for the construction firm to get its name included on the list.

The marketing effort required here would include not only submitting the information requested by the customer, but also including in that submission certain extra details which may not have been requested by the customer, but which are likely to impress him.

Advertising in construction journals or the Construction News may also prove useful.

Most construction companies indicated during discussions with them that they use telephone calls to check whether their names are on such a list.

However, there may also be the need for personal calls on the potential customer, not just to check whether the company's name has been included on the list, but also to start a development of some personal relationship which may prove useful later in the process⁽³³⁾.

Risk implications

Although the prequalification process offers the customer the advantage of an information bank, it also represents some risk implications both to the customer and the seller.

Risk to the Customer

The customer may become too attached to the list of prequalified contractors, and thus lose the benefit of searching for more efficient construction firms.

Secondly, with time, it is possible that the firms on the list may get to know each other. They may then collude to the disadvantage of the customer.

In Britain, although there was a suspected case of "collusion bidding" in 1970⁽³⁴⁾ which led to calls for an enquiry, collusion has not been found to be a common practice in the British construction industry.

Apart from the illegality involved, it is argued that it may not be in the interest of the firms to collude since those firms which are not involved, would quickly cash in and undercut the colluding firms⁽³⁵⁾.

In Nigeria, however the recent Ministerial Enquiry has shown a substantial evidence of collusion among major construction companies operating in the country⁽³⁶⁾.

Risk to the Seller

We have stated earlier that the customer may become too attached to the list of prequalified contractors, and so lose the

benefit of searching for more efficient firms other than those on the list. This in itself is a risk to the seller.

For instance, since the customer is most likely to turn to the listed contractors, any firm that is not on the list may not be invited to tender for, say, a given contract, and may thus, most likely be losing opportunities for good business.

This point was confirmed during my discussion with a number of customers, both public and non-public. They also revealed that generally, customers are more 'risk-conscious' when they are awarding a contract to a non-prequalified contractor, especially where the value of such a contract is high.

Prequalification stage therefore constitutes one of the major areas where the construction firm can apply usefully its marketing strategy to reduce the risk of lost business opportunities.

Conclusion

This section has attempted to demonstrate the following points on which the conclusion is based.

The process which eventually leads to contractual commitment in the construction industry evolves through sequential phases which, to some extent, are similar to what happens in a new-buy decision process for an industrial product.

However, the phases or stages through which the process evolves, are fraught with risks.

It is therefore essential that, if marketing is to fulfil its risk management function, the firm must have a good understanding of these phases, and the nature of the marketing effort required.

For example, most construction contracts are awarded through selective competitive tender during which the customer is supposed to turn first to his list of prequalified contractors. Therefore prequalification stage should be seen by the firm intending to compete in this sector of the market, as an important opportunity for it to apply its marketing strategy to reduce the risk of exclusion and thus, lost business opportunities.

Section Two

The Bidding Phase

Introduction

The climax of a normal marketing transaction is the offer and acceptance of a price in exchange for a product

This suggests that both the price and the product must be offered and accepted by those concerned in the transaction.

In this regard therefore, the price and the product, as marketing variables, are of tremendous importance in any business transaction.

In the construction industry, this importance is increased mainly due to the fact that most standard construction contracts are awarded on the basis of price, and the contract is not considered as successfully executed until the product is accepted by the customer.

The Main Objective of the Section

The main objective of this section therefore, is to demonstrate that since most construction contracts are awarded through competitive bidding, the bidding phase constitutes one of the most important areas where the firm can apply its marketing strategy as a risk management mechanism.

In doing this the firm should look beyond the bidding phase since, in spite of the importance and complexities of the bidding phase which have led to the development of bidding models, neither the models nor the bid itself can provide a panacea for all the inherent risks which the firm may face during the commitment phase.

The Bidding Phase

The bidding stage in the buying decision process has received much attention in recent years⁽³⁷⁾.

Basically, the bidding stage is a phase in a buying decision process during which the buyer, having come so far in the buying process, may invite the sellers to submit their prices at which they will produce a particular product for him.

These prices of course, are supposed to take into account the details which the customer may have provided about the required product.

The buyer is assumed to be aware of the 'true cost' of the required product. It is on this basis that he evaluates the prices which have been submitted to him and the seller who has submitted the lowest price is selected to produce the product⁽³⁸⁾.

This would seem so neat and simple, and the only risk to the seller then appears to be that of submitting a wrong bid price.

However, as has been noted earlier, each decision stage is, in fact, a decision area within which many decisions are made. Consequently, many activities involving many people also take place.

Bearing in mind the fact that the bidding phase is considered as one of the most critical stages in the buying decision process in the construction industry, the risk implications of submitting a wrong bid price are considered so serious that this relatively simple and straight-forward stage in the buying decision process, has become for the seller a very complex stage indeed.

In this section therefore, we shall consider:-

- (a) the marketing implications of the bidding phase;
- (b) the bid and its legal implications;
- (c) the risk implications of submitting a wrong bid price; and
- (d) bidding models and their main objectives.

(a) The Marketing implications of the Bidding Phase

For the purpose of developing and applying an effective marketing strategy, the bidding phase is important for the following reasons:

It provides an opportunity for the firm to apply its marketing effort by submitting the lowest acceptable bid price for a contract in order to make a sale.

In other words, the bidding phase provides an opportunity for the firm to test its ability to assess rightly or wrongly, the relationship between risk in the contract, the price of the contract, and the customer's likelihood of accepting that price.

However, the overall ability of the firm to do this is not known until the commitment phase is reached. What is known at the bidding phase is the customer's acceptance or rejection of the bid price.

The importance of the marketing implication of the bidding phase is also reinforced by the 'non-recoverable' nature of lost sales⁽³⁹⁾. One sad fact about marketing transactions is that once a sale is lost to someone else that particular sale can hardly be recovered. In other words, it is lost forever.

It could be argued that in the construction industry, contracts can be terminated and reawarded to another firm that may have lost it in the first place.

However it would be suicidal for the seller to wait and hope for such situations to occur.

The bidding phases therefore offers the seller the opportunity to co-ordinate and apply its marketing effort in such a way as to make a sale - win the contract. In doing this the firm must bear in mind "non-recoverability" of lost sales.

(b) The bid and its legal implications

A bid is an offer to accept a contract and execute the specified work at the price submitted in the bid⁽⁴⁰⁾. This offer may become a binding contract if the customer or buyer accepts it (41).

Thus, once 'offered' by the seller and 'accepted' by the buyer without any preconditions, a bid becomes legally enforceable in a court of law.

This would suggest that if a construction firm makes a bid, it is firmly committed to enter into the contract at its bid price if the contract is awarded to it.

Any change in terms of the bid by either party after it has been offered and accepted, may therefore constitute, technically, a counter offer and as such, must be accepted by both parties in the transaction.

It must however, be observed that the present practice of contracting in the construction industry seems to suggest that it is the wording of the contract itself that may reinforce or neutralise the legal implications of a bid.

In spite of this observation, this brief discussion of the

legal implications of a bid is intended to show that bidding is a very important management decision which should not be taken lightly⁽⁴³⁾.

(c) The risk implications of a wrong bid price

Bonny, a retired President and Chairman of a large American company, described bidding as:

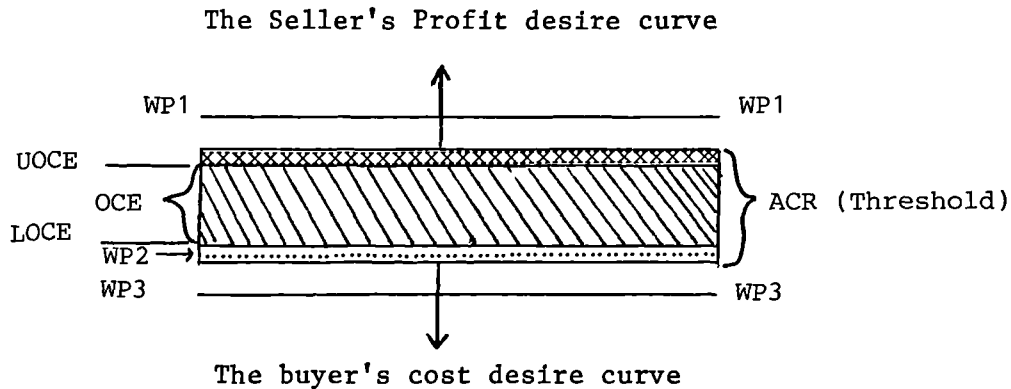
"the most difficult of all the functions of management to define. It is the least subject to rules of logic, impossible of scientific engineering analysis, and yet basically so important that an average contractor, with a fair knowledge of the business and competent organisation, who lacks an adequate concept of the art is almost foredoomed to failure."⁽⁴⁴⁾

What Bonny is warning about is the difficulty and complexity of the decisions involved at the bidding stage, and the inherent risks of these decisions which may lead to the submission of a wrong bid price.

Basically, a wrong bid price is defined to include the following three situations:

- (i) a bid price which is too high for the customer to accept.
- (ii) a very low bid which is acceptable to the customer but at which the seller cannot produce the required product without a loss; and
- (iii) a bid price too low for the customer to accept. That is a bid price far below the estimated minimum cost of the project.

These situations are illustrated in the diagram below:



The actual cost of a construction project is rarely known until that project is completed. Consequently, the buyer of a construction project makes his cost estimate, not in terms of a rigid fixed amount, but within an acceptable range represented by Owner's Cost Estimate (OCE).

Situation (i) is represented by a wrong bid price (WP1) which is far above the upper limit of what the customer is prepared to accept (the acceptable region ACR).

Situation (ii) on the other hand is represented by the bid price (WP2) which is below the lower limit of the Owner's cost estimate (LOCE).

However, since WP2 is within the lower limit of ACR, this bid is likely to be acceptable to the customer.

Situation (iii) is represented by a price (WP3) which is below even the lower boundary of ACR. Each of these situations presents its own risk implications.

The risk implication of situations (i) and (iii) for example, is that the construction company stands very little chance of winning the contract with such bid prices.

Thus the risk of not winning is associated with situations (i) and (iii).

Situation (i) with the bid price of WP1 would lead to a large profit should the company win the contract. However, because the price is outside the upper limit of the acceptable region (ACR) it is most likely to be rejected.

Situation (iii) where the bid price is WP3 would obviously undercut other bidders. But because the price is abnormally low, it is likely to raise the customer's suspicion as to whether the seller understands the nature of the work involved. He is therefore most likely to reject the price⁽⁴⁵⁾.

Situation (ii) on the other hand presents a price (WP2) which is just below the LOCE. However, WP2 is within ACR. Therefore, assuming that this is the most acceptable to the customer, the seller with that price wins the contract.

However WP2 is below LOCE. This implies that although the seller has won the contract he will most likely produce the product at a loss; assuming the LOCE is correct.

Thus the risk associated with this situation is the risk of winning and losing, and this could be disastrous for the firm.

The risk of winning and losing could sometimes occur as a deliberate strategy by a firm to gain some in-house experience in some areas of construction where this is considered crucial.

There are cases when the differences in bid prices of a given number of competitors are considered insignificant. In such cases, the customer is most likely to consider other variables as well. Previous experience has been found to be very important to

customers. For example Bonny⁽⁴⁶⁾ has reported an interesting case where the previous experience of the contractors was taken as determinant when their price differentials were considered insignificant.

In all these cases, the risk implications could be very serious indeed. Failing to win a contract because of high bid price, for example, could create, not only the risk of wasted effort and resources, but also the risk of idle capacity especially in times of scarcity of jobs.

Because of all these risk implications arising from a wrong decision within the bidding stage of a buying decision process, various quantitative models have been developed and numerous studies have also been undertaken to find ways of reducing or managing these risks.

Examples of such works include those of Friedman⁽⁴⁷⁾, Gates⁽⁴⁸⁾, Morin and Clough⁽⁴⁹⁾, Simmonds⁽⁵⁰⁾⁽⁵¹⁾, Grinyer and Whittaker⁽⁵²⁾, Whittaker⁽⁵³⁾, Park⁽⁵⁴⁾, Edelman⁽⁵⁵⁾, Broemser⁽⁵⁶⁾, Howard⁽⁵⁷⁾, Bonny⁽⁵⁸⁾, Adrian⁽⁵⁹⁾ and a host of others⁽⁶⁰⁾.

It is worth observing that although some of these works were not directly concerned with construction, their basic objective, nonetheless, remains the same as those which were developed purposely for the construction industry.

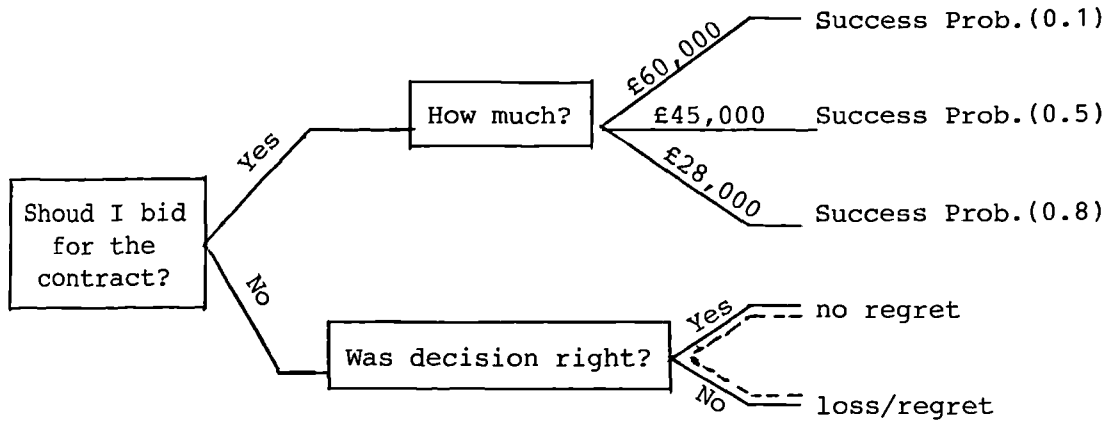
Let us therefore, look at some of the works and their objectives.

(d) The development of Bidding Models and their main objectives

The bidding stage in the buying decision process involves taking two important initial decision, each with its own further complications.

The first important decision is, whether to bid, or not to bid. Having decided that the firm should bid for the contract, the next important decision is, how much should the firm bid.

The Bidding Stage decision-diagram



----- represents Post decisional dissonance.

For example, as it can be seen from the decision diagram, a no-bid decision will stop any further action concerning that particular contract.

However, if the contractor later realises, perhaps too late, that he has taken a wrong decision, he regrets his decision since this has led to a loss of an opportunity to secure a possible profitable contract.

If, on the other hand, after a preliminary examination of the specific contract and consideration of the firm's position and market environment, the contractor decides to bid for the contract, then the next crucial question he will normally ask is 'How much?'

The answer to this question will normally be guided by the fact that the contractor himself is aware that he will make a loss or profit on the contract depending on whether he loses or wins the contract.

Types of profit

The contractor's profit is however, of two types:

- (i) the immediate profit (I) and
- (ii) the Expected profit (E).

The immediate profit (I) is defined as the difference between the estimated cost of executing the project and the bid price.

However, the contractor is not always sure of winning and his degree of certainty is merely an assigned probability which is just that - a probability.

Nevertheless, this assigned probability of winning has some effect on the profit which the contractor expects to get on the project.

Thus, unlike the immediate profit, the expected profit (E) is a product of the difference between the bid and the estimated cost of executing the project times the probability of winning that contract with the bid.

Thus, if

K represents contractor A's bid

I represents his Immediate profit

P represents the probability of winning the contract with bid K

C represents the estimated cost of the project

E represents the expected profit on the project if contractor A wins the contract

then $I = K - C$

$$E = P(K-C) = P(I)$$

Suppose we assign figures to those letters so that

$$K = \text{£}60,000$$

$$C = \text{£}20,000$$

$$P = 0.1$$

$$\begin{aligned} \text{then } E &= (K-C) \times 0.1 = (\text{£}60,000 - \text{£}20,000) \times 0.1 \\ &= \text{£}4,000 \end{aligned}$$

Suppose contractor A has decided to bid, but he has to decide on one of the following alternative bids (K_1, K_2, K_3). C is constant.

<u>Bid</u>	<u>Amount (£)</u>	<u>P</u>
K_1	60,000	0.1
K_2	45,000	0.5
K_3	28,000	0.8

Using the formula derived above, contractor A's I and E would be as follows:

<u>Bid</u>	<u>I (£)</u>	<u>E (£)</u>
K_1	40,000 (0.1)	4,000
K_2	25,000 (0.5)	12,500
K_3	8,000 (0.8)	6,400

From this rather oversimplified example, a complex problem may emerge. It is generally accepted that the size of the risk arising from a particular contract may be quite independent of the bid price.

However, it is generally equally accepted that the size of the profit and the firm's expectation of achieving it are both dependent on the bid price.

We have already seen that while an abnormally high price will lead to more profit, the probability of being successful in a bid with such a high price is relatively very low.

Conversely, while an abnormally low price may have a relatively high success probability, this may lead the firm to incur a loss or unsatisfactory level of profit on the contract.

Between these two prices therefore, there is a price which represents optimum trade-off between profitability and success probability.

Our contractor in the example is assumed to be concerned only about the bid (K) which will yield the highest expected profit (E). He is therefore most likely to submit bid K_2 since he is not concerned about competition.

In practice however, contractor A will be faced with many competitors. His primary concern therefore, will most likely be:

FIRST how to submit a winning bid, and
SECOND that will yield some profit.

Basically therefore, the main objectives of most competitive bidding models seem to centre around this twin problem some placing more emphasis on profit, and others emphasising more the need to undercut competitors with a low bid price without necessarily abandoning the profit motive.

The latter group seems to be closer to what actually happens in the construction industry, though in some cases, the two cannot be clearly distinguished.

Friedman⁽⁶¹⁾ for example, was more concerned about the probability of winning over a given number of competitors than the establishment of an optimum profit bid price.

In the model which he proposed in 1956, he showed that the value of a bid was the probability of winning the bid with a given bid times the profit to be achieved if the firm won the contract with that bid.

According to Friedman, one way of determining the probability of winning with a given bid was to study the historical bidding patterns of competitors.

Where there was more than one competitor, the probability of winning would be the probability of winning over the first competitor times the probability of winning over the second competitor times the probability of winning over the last competitor.

Where the firm is uncertain about the number of competitors, the use of an "average" n competitor was suggested. Thus, in such a case, the probability of winning would be the probability of the firm winning over one 'average' competitor raised to the n th power (62).

What Friedman seems to have suggested in the model therefore, is that the probability of a firm winning a contract with a given bid is a function of both the number of competitors and the bid price.

However, the need to outbid the competitor(s) rather than the establishment of an optimum price, seems to be the main preoccupation of the model.

Friedman's suggestion that the historical bidding patterns of competitors should be used to determine the probability of winning in a given contract seems reasonable but unrealistic.

Apart from the fact that it is difficult to obtain data on the historical bidding patterns of competitors the firm is often uncertain about the number of competitors. Friedman himself should have realised this when he suggested the use of the "average" n competitor.

Since the appearance of Friedman's model however, many other works have appeared. Some have 'improved' on Friedman's model, while others have put forward their own independent views.

Park, for example used Friedman's model both in his article⁽⁶³⁾ and in his book⁽⁶⁴⁾. Although Park is probably one of the first authors to suggest that a bidding model be used to maximise the firm's expected profit in the construction industry his approach has been criticised as being "primitive".⁽⁶⁵⁾

His main suggestions and strategy seem to be based on the number of competitors. This would seem to suggest that the optimum mark-up on any job bid against ' n ' competitors would be a decreasing function of ' n ' alone.

Howard⁽⁶⁶⁾ also used Friedman's model, but concerned himself more with the probability of bidding lower than the lowest competitor.

Since this was also the probability of winning the contract, it could be concluded that Howard was more concerned with the bid that would win the contract rather than the probability of winning over each competitor.

Christenson⁽⁶⁷⁾ also used Friedman's model to consider the investment bankers bidding for new public utility bonds in the United States.

Since the exact number and identity of all competitors were known, the probability of winning the bid was arrived at by multiplying the probability of winning over each successive competitor.

Apart from this overriding need to win, other models also emphasised the optimum profit objective.

Gates⁽⁶⁸⁾ for example, acknowledged in his model that there were many reasons for the firm to desire to be a successful bidder.

Some of the main reasons, according to him include:

(a) the profit motive, which, according to him, is the greatest motivating factor.

However, Gages ignored the fact that this motive may be checked by other factors which he himself suggested, such as:

(b) the need to minimise losses, especially for contractors who must keep their firms intact even during idle periods;

(c) the need to minimise the profits of competitors in order to maintain one's own long range competitive position.

It is obvious that a bidding strategy which is aimed at achieving objectives (b) and (c) cannot at the same time be expected to achieve objective (a) in the best possible way, especially where many competitors are involved.

Gates himself may have realised this. If this is so, then it also explains why, although the models which were proposed by Gates were aimed at maximising profit in a competitive bid, this was to be done in three different situations:

1. Lone-Bidder Strategy
2. Two Bidder Strategy and
3. Many Bidder Strategy.

It seems therefore, obvious that the main concern of Gates was to find the right bid price which would give the firm the maximum profits in different bidding situations.

Morin and Clough⁽⁶⁹⁾ acknowledged the need to investigate and determine the effect of influential elements on profits in a competitive situation before a competitive bidding strategy can be formulated.

Accordingly, the model which they proposed emphasised six elements, namely,

1. Cost estimate
2. True cost
3. Mark-up
4. Number of competitors
5. Identity of competitors and
6. The class of work involved.

There is no doubt that the effects of some of these elements on the buying decision process go beyond the bidding stage.

However, their implications seem to have been interpreted in the model mainly in terms of their contribution to the winning of contracts.

Consequently, the model which the authors formulated aimed primarily at helping the contractor maximise his profit when bidding for a lump-sum contract.

Grinyer and Whittaker⁽⁷⁰⁾ introduced the preoccupation of their study by drawing attention to the critical importance of the bid prices to the prosperity of the firm.

"If they are too low contracts upon which low or negative profit may be borne are obtained. If they are too high the firm fails to gain the contracts, and may ultimately be driven out of business."

With this in mind, the authors proceeded to formulate a competitive bidding model which can be described as an improved version of Friedman's model.

Four companies were used in the study. These firms provided information on 153 contracts, relating to net estimated cost, submitted tenders, and competitors' prices for each set of contracts sought over a given interval of time.

The analysis of this information, backed by various discussions with other firms, showed that, although mark-ups did not vary greatly between the firms, yet the average margin by which the contracts in the set of 153 were won (ie the second lowest bid minus the lowest bid) was 2.8%.

Consequently, the authors concluded that there was a tendency for the winning firm to "leave money on the table".

In other words, the winning firm did not only fail to gain the level of profit possible, but was also the one with the lowest cost estimate.

Since the authors did not indicate the number of other companies with whom they discussed, it is difficult to comment on their finding of 2.8% average winning margin from which a further conclusion was drawn about "leaving money on the table".

However, the finding itself seems to support my earlier observation that in practice, construction firms are more concerned about a bid that will win the contract, rather than the maximum profit bid price.

Broemser⁽⁷¹⁾ developed from a study of one construction company, a prescriptive sequential bidding model which takes into account the resources of the firm, as constrained by its bond, in deciding on which jobs to bid and how much to bid.

He argued a case for the use of the Net Present Value technique in deciding for which contracts the firm should tender or prepare to tender.

According to him, the firm should first of all price the contracts, and then discount the expected value to the present value.

This will provide the firm with a clear picture of which contracts it should bid for, and with how much mark-up in order to optimise the profit.

There is no doubt that this will be advantageous to the firm, especially as it will enable the firm to plan in advance for the intended contracts.

However, Broemser seems to have assumed that the firm will have perfect information about the availability and costs of all future contracts.

In real life, this is unrealistic. Certain aspects of contract information are not normally given out for any other purpose, but are supplied only as part of tender documents.

This suggests that, under normal circumstances, the firm will

not have enough information beforehand, to sensibly price and discount the expected value of contracts to the present value, until tenders for such contracts are actually invited.

In spite of this shortcoming, Broemser's model seems another useful attempt to find a way of reducing the risks which a wrong bidding decision could create.

Edelman⁽⁷²⁾ emphasised the dependence of the size of profit and the firm's expectation of achieving it entirely on the bid price.

On this basis, he proposed a model approach which could lead to specific bid price that may produce the largest possible incremental profit contribution of the contract in question to the business as a whole.

Like Simmonds he touches on issues which draw attention to the need to analyse other variables carefully before embarking on a bid.

Although his model was tested in seven cases and found satisfactory, he cautioned that management should regard results from models as contributing rather than deciding.

Simmonds seems to have perceived the whole issue of competitive bidding as essentially that of organisational buying behaviour.

Consequently, he seems to recognise the dynamic nature of buying decision groups, and the somewhat conflicting interests of the persons who may make up these groups.

Thus, unlike most other writers on competitive bidding, he has

taken a broader view of the issues which must be considered when bidding for a contract.

In one of his papers⁽⁷³⁾ he maintained that the firm bidding for a "non-standard" contract must not only concentrate on the price, but must also take into consideration the non-price features. This is because,

"customers do compare features other than price in choosing between bids."

This contention is based on the fact that the decision making unit in the customer organisation may contain "factions" with different interests.

However, where the dominant "faction" has been identified its interest must be emphasised in the bid, while at the same time ensuring that at least the minimum requirements of other factions have been met.

Simmonds therefore, went on to suggest that the price itself should be fixed after a careful consideration and combination of the non-price features.

It could however, be observed that Simmonds is arguing a case which seems to be highly "qualified". As such some of the points he has raised are more useful in such specific cases.

In the construction industry, a 'non-standard' contract is obviously different in some ways from a 'standard' contract where, apart from price, the buyer is assumed to take all other variables as given.

His choice behaviour is guided by existing rules, laws and

regulations as well as professional code of conduct.

In such a case, comparison of features other than price may not be a common behaviour though this occasionally does happen (74).

In another paper, Simmonds and Slatter⁽⁷⁵⁾ have observed that the almost exclusive concern for deciding bid prices has obscured for the construction firms the importance of adjusting other marketing variables as well.

Although the main concern of their paper was the need to adjust the number of estimators in line with the firm's production capacity which was assumed as "fixed", the authors also recognised the need to adjust other relevant variables as well.

This, according to them, is necessary in order to achieve an overall balancing of the resources at the firm's disposal in terms of its capacity and profit optimisation.

Thus, while profit still appears to be the main motivating factor for the firm's behaviour, the authors seem to have suggested that the firm's efficiency in allocation its resources is essential for the attainment of that profit.

The works by Morin and Clough, Simmonds, and Edelman, in which they have drawn attention to the need to analyse very carefully all the relevant factors before embarking on a bid, also serve as a suggestion that the firm should look beyond the bidding stage when submitting a bid.

This suggestion is also shared by the Institute of Building (76). For example, in its Estimating Code, the Institute has provided an elaborate list of issues and items to be considered during the estimating and preparation of a tender or bid for a

construction contract.

In the course of this study, this researcher had several discussions with Chief Estimators of a number of construction companies, concerning their estimating procedure. Most of them agreed with the list provided by the Institute of Building, especially in the preliminaries.

More importantly, the list itself could be interpreted as an implicit suggestion that the bid should take into consideration the subsequent stages in the buying decision process.

This is buttressed by the Institute's insistence that "An estimate must be prepared in a way that is explicit and consistent, and which takes account of Methods of Construction and all circumstances which may affect the execution of work on the project."

The Institute believes that the best way to do this is for the firm to make a realistic and sound estimate which :

"can only be achieved when each operation is analysed into its simplest elements and the cost estimated methodically on the basis of factual information."⁽⁷⁷⁾

There is no doubt about the wisdom of looking beyond the bidding stage during the preparation of both the estimates and the bid. However, to suggest that the estimates can be based on 'factual information' is to imply that the 'true cost' of the project can be established before the completion of the project.

This is rarely the case. In practice, the 'true cost' of most construction projects is known only after they have been completed.

This is partly because, as Whittaker⁽⁷⁸⁾ has demonstrated, the estimates from which the bid itself is prepared, are based on some degree of uncertainty.

Given that this uncertainty cannot be quantified precisely, the difference between the ability of the firm to win a contract on one hand, and the firm's ability to execute that contract satisfactorily, on the other, forms the basis for most of the risks in the commitment phase.

As a matter of fact, some of the problems which arise during the commitment phase strongly suggest that in spite of its crucial role in construction, the bidding phase cannot act as a panacea for all the problems which the firm may face in the production phase.

Before we conclude our discussion in this Section, I must admit that it has not been possible to include every work which has been undertaken on competitive bidding. However, the works which have been examined are adjudged to be among the most significant ones.

Moreover, their selection has been made in such a way as to present the general concern of competitive bidding models and the issues involved at the bidding stage.

We can therefore conclude from what has been discussed, that for a firm in the competitive bidding sector of the construction industry market, the bidding stage constitutes one of the most critical stages during which it can apply its marketing strategy to manage perceived risks.

Conclusion

From what we have discussed in the section, the following points have emerged to form the conclusion:

The bidding phase is one of the most critical stages in the selling decision process for a construction contract.

It offers the firm the opportunity to apply its marketing strategy through the submission of a right bid price, bearing in mind the risk implications of submitting the wrong bid price.

In this regard therefore, price constitutes the most important variable in the bidding strategy of the firm.

In spite of its importance, the bid itself cannot provide a comprehensive insurance against all inherent risks which the firm may face during the commitment phase.

The following Chapter therefore, will be devoted to the discussion of the commitment phase and its risk problems which cannot be solved by reliance on the bidding phase.

Summary and Conclusions of the Chapter

From what has been discussed in this Chapter, the following points have been established to form the general conclusion of the Chapter.

Evolution of construction contract is a buying decision process. As such, it evolves through phases and involves many people and factors.

For the purpose of applying an effective marketing strategy the bidding phase appears to be a very critical phase for the firm in the competitive bidding sector of the market, in terms of the opportunity to win or lose the contract.

Because the buying decision process may depend on the nature of the contract, it may not be possible for the construction firm to develop marketing strategies to deal with every decision phase.

What is required therefore is for the firm to analyse the buying decision process in order to identify the critical phases in the decision process concerned.

REFERENCES

1. Webster, E F, Industrial Marketing Strategy, John Wiley & Sons 1979 page 27
2. Baker, M J, Marketing: an introductory text, Third edition The Macmillan Press 1981 page 100

Also see
Baker, M J, Marketing Development A comprehensive Survey Penguin 1983, pages 60-62.
3. Webster, E F and Wind Y, Organisational Buying Behaviour Prentice-Hall, N J, 1972.

see also
Webster E F and Wind Y, "A general model of Organisational Buying Behaviour", Journal of Marketing, April 1972, pp. 12 - 19.
5. Nielson, O, "Models of Industrial Buyer Behaviour" Paper presented at the Marketing Workshop, International Institute of Management, Berlin, May 1983.
6. Sheth, J N, "A Model of Industrial Buyer Behaviour" Journal of Marketing, October 1973, pp 50-56.
7. Robinson, P J, Faris, C W and Wind, Y, Industrial Buying and creative Marketing, Allyn & Bacon Inc, Boston 1967.

see for example
Robinson, P J, Faris, C W and Wind Y, op. cit., pp 23 - 35,
Baker, M J (1983), op. cit., pp 56-57.
8. Howard, J A and Jagdish N Sheth, The theory of Buyer Behaviour, John Wiley and Sons, NY 1969, p 27.
9. Wind Y, "Industrial Source Loyalty" Journal of Marketing Research, vol 7, Nov 1970, pp 450-57.
see also
Newall J, "Industrial Buyer Behaviour; a Model of the implications of Risk Handling Behaviour for Communication Policies in Industrial Markets" European Journal of Marketing Vol 11, No 3, 1977, pp 165-211.
10. Hutt, M D and Speh T W, Industrial Marketing Management The Dryden Press NY 1981.
11. "Trouble for Stevin in US", The Construction News, February 18, 1982, p.1.

12. See Baker, M J (1983) op. cit., p 56, Robinson, P J et al (1967), op. cit, Chapter IV.
13. See for example, Newall, J (1977) op cit.
14. See for instance
Payne, W J (1976), op. cit., p.384, Newman, J W and Staelin R (1972) op. cit. p. 249, Gronhaug, K (1975), op. cit., pp 15-23.
15. See for instance
Webster, E F and Wind, Y (1972), op. cit.,
Nielson O (1973), op. cit.
16. See for example Baker M J, (1981), (1983), op. cit.
17. Robinson, P J, et al, (1967) op. cit.
18. Goldhaber S et al, Construction Management, Principles and Practices, John Wiley & Sons, 1977, p 10.
19. Whittaker J D, 'A Study of Competitive bidding with particular reference to the construction industry', PhD Thesis 1971, The City University, London.
20. "Interdependence and Uncertainty - A Study of the Building Industry". Digest of a report from the Tavistock Institute to the Building Industry Communication Research Project. Tavistock Publications 1966.
21. See for example
Ward, P A, Organisation and Procedures in the Construcion Industry, Macdonald & Evans, 1979, p 114.
Whittaker, J D (1971), op. cit. pp 17-20.
22. Hill, R W and Hillier, T J, Organisaitonal Buying Behaviour Macmillan 1982, Chapter 3.
23. See for example,
Webster E F, (1979), op. cit.

Robinson , P J, Faris, C W and Wind, Y (1967), op. cit. p 20.
24. Hill, R W and Hillier, T J (1982), op. cit. pp 42-43.
25. Davisson, C N, quoted by Robinson P J et al, (1967) op. cit. p 20.
26. See for example some of the observations made by Birse, P "Buying and Selling Construction in the future" Purchasing and Supply Management, July 1983, p 23.

27. Robinson, P J et al, (1967), op. cit.
28. For instance, Robinson, P J, (1967), op. cit.
Hill, R W and Hillier T J, (1982), op. cit.
29. Hill, R M et al, Industrial marketing, Irwin 1975, Chapter 6.
30. A very recent example is the work on the building facing the Andersonian Library, Strathclyde University. For reasons still undisclosed, most of the building work in progress was pulled down completely after it had been almost completed. Unconfirmed sources said the destroyed work did not meet the customer's needs or specifications.
31. Maher, R P, Introduction to Construciton Operations John Wiley & Sons NY 1982, p 16.
32. Birse, P (1983), op. cit. p 23.
33. See for example, Maher, P (1982), op. cit. pp 33-34.
34. "Contractors' 'phoney' bids spur enquiry", The Times, 20 March 1970.
35. Broemser, G M, "Competitive Bidding in the Construction Industry", PhD Dissertation, Stamford University, 1968.
36. Office of the President: Report of the Ministerial Committee on the causes of high costs of contracts in Nigeria (1981).
See also
"Contract Explosion in Nigeria", West Africa 5 July, 1982 pp 1750-51, 12 July 1982, pp 1812-15.
37. See for example
Stark R M, Competitive Bidding: A comprehensive Bibliography Operations Research, Vol 19, March-April, 1971, pp 484-90.
38. See for more details
Grinyer, P H and Whittaker, D J, "Managerial Judgement in a Competitive Bidding Model" Operational Research Quarterly Vol 24, No 2 1973.
39. See James, B G S, Integrated Marketing, Batsford Ltd, London, 1967.
40. See Broemser (1968), op. cit.
41. See for example the legal argument presented in Watson S "The Marketing implications of the Quotation"
An MSc Thesis, presented to the Department of Marketing, Strathclyde University 1979.

43. See Morin, T L and Clough, R H, "Competitive Bidding Strategy Model" Journal of the Constructiton Division (ASCE) July 1969, p 6690.
44. Bonny, J B ed., Handbook of construction Managment and Organisation, Van Nostrand-Reinhold Coy. NY 1973, p 34.
45. Most construction customers confirmed during my discussions with them that they would not accept an abnormally low bid price, unless they were assured of all its risk implications.
46. Bonny, J B (1973), op. cit. pp 35-36.
47. Friedman, L, "A Competitive Bidding Strategy" Operations Research Vol 4 1956, pp 104-12.
48. Gates, M, "Bidding Strategies and Probabilities" Journal of the Construction Division ASCE, March 1967 pp76-107.
49. Morin, T L, and Clough, R H, "Competitive Bidding Strategy Model", Journal of the Construction Division, July 1969, pp 85-103.
50. Simmonds, K, "Competitive Bidding: Deciding the Best Combination of Non-price Features", Operational Research Quarterly, Vol. 19, No. 1, 1968, pp 5-14.
51. Simmonds, K, "Marketing and Pricing Under Competitive bidding", Ph.D. Thesis, London University, 1965.

Simmonds, K and Statler, S, "The Number of Estimators: A Critical Decision for Marketing Under Competitive Bidding", Journal of Marketing Research, Vol. XV, (May 1978), pp203-13.
52. Grinyer, P H and Whittaker, J D, (1973), op.cit.
53. Whittaker, J D, "A Study of Competitive bidding with particular reference to the construction industry", Ph.D. Thesis, The City University, London, 1971.
54. Park, W R, "How Low to Bid to Get Both Job and Profit", Engineering News - Record, April 19, 1962, pp 38-9.
55. Edelman, F, "Art and Science of Competitive Bidding", Harvard Business Review, July-Aug. 1965.
56. Broemser, G M, (1968), op. cit.
57. Howard, R A, "Information Value Theory", IEEE Transaction on Systems Science and Cybernetics, SSC-2, Aug. 1966, pp 22-26.

58. Bonny, J B, (ed.), (1973), op. cit.
59. Adrian, J, Business Practices for Construction Management, Elsevier, N.Y., 1979, Chapter 3.
60. See for example,
Stark, R M, "Competitive Bidding: A Comprehensive Bibliography", Operations Research, Vol. 19, March-April 1971.
61. Friedman, L, (1956), op. cit.

See also the conclusions in,
Whittaker, J D (1971), op. cit.
62. See Broemser's analysis of the model, in
Broemser, G M (1968), op. cit.
63. Park, W R, (1962), op. cit.
64. Park, W R, The Strategy of Contracting for Profit, Prentice-Hall, 1966.
65. Broemser, G M (1968), op. cit.
66. Howard, R A (1966), op. cit.
67. Christenson, C, "Strategic Aspects of Competitive Bidding for Corporate Securities". Boston: Division of Research, Graduate School of Business Administration, Harvard Univ. 1965.
68. Gates, M, (1967), op. cit.
69. Morin, T L and Clough R, (1969), op. cit.
70. Grinyer, P H and Whittaker, J D (1973) op. cit.
71. Broemser, G M (1968), op. cit.
72. Edelman, F, (1965), op. cit.
73. Simmonds, K, "Competitive Bidding: Deciding the Best Combination of Non-price Features". (1969), op. cit.
74. See for instance, Bonny, J B (1973), op. cit. pp 35-6.
75. Simmonds, K and Slatter, S (1978) op. cit.
76. "Code of Estimating Practice", The Institute of Building, 1966.

77. Same as Reference 76.
78. Whittaker, J.D. (1971), op. cit.
79. Adrian, J J, Business Practice for Construction Management, 1979, op. cit. p 77.

CHAPTER SIX

The Commitment Phase

Chapter Six

The Commitment Phase

Introduction

In the last Chapter, an attempt was made to show that, basically, a construction contract evolves through phases similar to those in a new-buy situation in the industrial market.

The importance of the bidding phase and its risk implications were also demonstrated with subsequent conclusion that, in spite of their risk managements function, the bidding models could not provide a comprehensive insurance against all the risk inherent in a construction contract.

The objective of the chapter

The main objective of this Chapter therefore, is to show that in the contract execution phase, the main challenge the firm faces is "management risk", which cannot be completely covered by reliance on bidding models.

This is because, while a successful execution of the commitment phase is essential to ensure customer's post-purchase satisfaction, both in terms of company's performance on the contract, and the quality of the delivered product, the phase itself involves so many people and other factors, some of whom/which are not only outside the control of the firm, but also are so dynamic that their behaviour cannot be predicted with certainty.

Therefore, what is required for a successful execution of the commitment phase, is human, managerial and intuitive judgement to handle the factors and the problems which they may create.

Marketing implications of the commitment phase

The main marketing implications of the commitment phase relate to post-purchase satisfaction of the customer.

In the review in Chapter Four, we stated that, because of the futuristic factor which is inherent in all contracts, most construction products are sold before they are produced.

In Chapter Five, we also stated that in practice, the construction company does not always have all the precise details about every project before it can tender for it.

In essence, what these statements both mean is that at the time a purchase/sale of a contract is made, both the buyer and the seller are dealing with a hypothetical or an abstract product until the product is completed and delivered.

This means that, the customer's post-purchase satisfaction is related to two factors, namely:-

- (1) the performance of the construction company on the contract, in terms of delivery on time, and
- (2) the performance of the product after it has been delivered. In other words, the quality of the completed project, which, in a way, relates to the company's performance.

Performance of the company is normally assured by the customer's requirement that the contractor must provide a performance bond. This serves as an insurance against the contractor's inability to perform.

However, the performance bond itself, which is normally issued by a bank, tends to emphasise the financial standing of the company rather than its performance.

However, it is inconceivable that the bank which undertakes to "make good any damages suffered by the client" as a result of the contractor's inability to perform, would not assure itself first, that the company has the capacity to perform.

Nevertheless, whether the performance is good enough to satisfy the customer, will depend not so much on the bond, but on the company itself.

Performance of the product after it has been delivered, is also assured by customer's inclusion of a Retention Clause in the contract. This allows the customer to retain a certain percentage of scheduled payments made to the contractor for work done.

The retained money may be used "to make good" any unsatisfactory performance of the product after it has been delivered.

In Britain, the period during which the money must be retained, is six months in England, and twelve months in Scotland. Then, the money is released to the company if the performance of the product has been satisfactory during the specified period.

The implication of all this is that, the commitment phase itself becomes a test for the seller organisation to assess practically its ability to estimate or forecast its performance and the factors which may affect that performance.

In marketing terms, the commitment phase provides an opportunity for the firm to apply its marketing effort to achieve post-purchase satisfaction of the customer in two ways:-

- (1) through the delivery of the product on time; and
- (2) through the quality of the delivered product.

Time and cost are inextricably linked in any construction contract. A delayed project benefits neither the seller nor the customer. It could in fact be disastrous for the seller, though this depends on the particular circumstance.

The firm must not only be aware of this, but also use delivery date as a marketing variable to impress the customer.

It is likely that the delivery date may have been used already during the bidding phase. However, it will be of no use if it is not put into practice. The customer is impressed by an early delivery date of the actual physical product, not the date stated on a piece of paper, though this also affects the purchase decision of the customer.

The company can also use the quality of the finished product as a Marketing Variable to its advantage. Some authors have assumed that, since the owner is normally represented by the architect/engineer whose duty it is to see that the project is constructed according to specifications, the owner of a construction project would take "quality" as a given Variable ⁽¹⁾.

However, those who advance such argument do not seem to realise, that there is a significant difference between an 'excellent' product and an acceptable one ⁽²⁾.

The owner of a construction project may not have any legal or contractual basis to reject a completed project which is 'acceptable', but which obviously could have been better.

In such a case, he would not normally want to have any future dealings with the firm if he has a choice.

The commitment stage therefore, provides the firm with the opportunity to impress the customer with a high quality product.

However, it must be noted that the effective use of both 'delivery date' and 'product quality' as marketing variables must be based on the overall management of the other factors which may make this possible or impossible.

Shift in emphasis

The commitment stage itself shifts the whole emphasis away from the preceding stages to the actual production of the product.

From now on decisions must be concerned with the following factors:-

- (i) the planning of the production activities;
- (ii) the purchase of the required materials;
- (iii) the production and delivery of the required product within budget and time; and
- (iv) the potentials for disputes.

The commitment stage itself is made up of two sub-stages, namely:-

- (1) the contracting sub-stage; and
- (2) the production sub-stage.

The Contracting Sub-stage

In a standard construction contract, most of the conditions governing the conduct of such contracts have already been laid down by various professional bodies concerned with the construction industry.

Such professional bodies include:-

- (a) The Joint Council Tribunal (J.C.T.)
- (b) The National Federation of Building Trades Employers (N.F.B.T.E.), and
- (c) The Institute of Civil Engineers (I.C.E.).

The J.C.T. Standard Form of Building Contract

The Joint Council Tribunal is a body which is made up of representatives of professional institutions and employers' associations.

Its Standard Form of Building Contract is published in six editions, each with a specific purpose.

These editions are:-

- (i) Private edition with quantities.
- (ii) Private edition with approximate quantities.
- (iii) Private edition without quantities.
- (iv) Local authority edition with quantities.
- (v) Local authority edition with approximate quantities.
- (vi) Local authority edition without quantities.

Originally, the J.C.T. Form of Building Contract was referred to as the Royal Institute of British Architects (R.I.B.A.) Standard contract.

However, this name is no longer technically correct, since the R.I.B.A. itself is a part of the J.C.T. ⁽³⁾.

The J.C.T. also publishes two other volumes -

- (a) The Fixed Fee Form of Prime Cost for use in lump sum projects in the private sector, and
- (b) The Agreement for Minor Building Work, for use on small scale projects.

The N.F.B.T.E.

The N.F.B.T.E. has two forms of contract.

- (a) The N.F.B.T.E. Standard Forms of Sub-contract, and
- (b) The N.F.B.T.E. Form of Contract for use in 'Design and Build' situations.

These two forms of contract are however, directly related to the provisions of the J.C.T. Standard Form of Building Contract.

The I.C.E.

The "Form of General Conditions of Contract for Works of Civil Engineering Construction" is issued by the I.C.E.

Generally, this is referred to as the "ICE Form". It is used mainly for Civil Engineering works.

Apart from these professional bodies and their various forms of contracts, there is also the G.C/Wks - a Form of General Conditions for Building and Civil Engineering Works, especially where the central Government Departments are involved.

This is divided into two parts, namely:

- (a) G.C/Wks/1, and
- (b) G.C/Wks/2.

All large building and civil engineering works involving the central Government departments are covered by the provisions of the G.C/Wks/1 Standard Form, while the G.C/Wks/2 takes care of the small scale works.

In spite of these predetermined conditions of contract, each contract tends to have some unique aspects.

This seems to suggest that it may be possible for the firm to negotiate some favourable terms or at least safe-guard itself against certain types of risks in the wording of the contract.

The contracting sub-phase therefore is important in the sense that it determines the conditions under which the firm must work to produce and delivery the required product.

The understanding of these conditions and/or the ability to influence them is essential for successful operation in the construction industry.

The Production Sub-phase

This is the stage during which design or drawings and specifications are converted into a physical product to serve the intended purpose.

Like any other product, the production of a construction product calls for coordinated effort by the management and all those concerned, directly or indirectly with the production process.

Unlike other products however, the skills required to manage successfully the production of a construction product are so diverse that they require innovative thinking to deal with the forces involved in the project.

McNulty⁽⁴⁾ for example, has provided an extensive discussion on how the firm should apply its management skills during the commitment phase of a construction contract.

However, his discussion is based on his observation that

"A construction site is not a factory assembly line; there are many unforeseen situations requiring innovation to allow the work to proceed".

Fine⁽⁵⁾ made a similar observation in the paper he presented during a construction management conference.

What is implied in these observations is that management of the production phase calls for imagination, and creativity on the part of the construction firm.

The discussion paper by Halsey and Margerison⁽⁶⁾ has clearly supported this view and thrown more light on the management problems involved during the production phase of a construction contract.

Take for example, apart from the fact that most construction products are made on the site or in the open, a typical construction project would involve at least the following groups of factors or forces:-

- (i) The firm's own workforce.
- (ii) The sub-contractors and their workforces,
- (iii) The owner and/or his representative;
- (iv) Materials, equipment and suppliers.

To be effective, it is obvious that the firm must not only recognise the diversity of these factors, but it must also consider their specific positions and relative importance regarding the construction contract.

The factors themselves can be grouped into two -

- (1) the human side⁽⁷⁾, and
- (2) the materials and equipment side.

The Human Side

In discussing the human side as a separate factor in the successful execution of a construction contract, it is important to bear in mind that neither the human side factor nor the materials and equipment side factor can function effectively on its own or without the other.

It is in this regard that Maher⁽⁸⁾ has stressed the need for the firm constantly to be aware of the relationship between labour, materials and equipment units during the production of a construction product.

Naturally, this includes how well the activities are planned and controlled in terms of 'time' and 'cost' factors. This introduces, again, the essential role of planning and control in the success of a construction contract.

Consequently, this has led some authors, such as Adrian⁽⁹⁾ to conclude that-

"the management functions necessary to deliver a construction project within defined time, cost and quality objectives can all be viewed as part of two functions: Planning and Controlling.

Obviously, this cannot be divorced from the understanding, cooperation and productivity of the labour force, particularly the site labour.

This brings us face-to-face with the question of industrial relations or labour management in the construction industry as it affects delivery.

Generally, many theories⁽¹⁰⁾ have been put forward and numerous research findings have also been reported about productivity. However, it would seem that no definite conclusion has been made.

This may be partly because, as Adrian⁽¹¹⁾ has noted:

"no single individual can manipulate more than a limited number of factors at a time as possible determinants of productivity. As such, the result is that many individual pieces of research are produced, but there is not comprehensive treatment of the overall problem".

Recently, Bennett⁽¹²⁾ discussed at length some of the theories and "performance components" which have been associated with workers' behaviour and productivity.

However, he noted with regret that:

"neither of these components of performance at work are of any account if the employee for whatever reasons, is not prepared or willing to work".

In spite of this, some authors emphasise the level of understanding and cooperation between management and workers.

Atkinson⁽¹³⁾ for example, while agreeing with Hunt's view⁽¹⁴⁾ of 'leadership factor', calls attention to the need for cooperation between management and workers.

Fine⁽¹⁵⁾ has emphasised good planning which will take account of the peculiar working conditions in the construction industry.

Borcherding and Garner⁽¹⁶⁾ undertook a study of twelve power plants under construction in the United States to determine the effect of a number of factors on worker productivity on a construction project.

Each site employed between 1,850 and 3,600 craftsmen at different times.

Although ten of the plants were nuclear projects and so the research may be criticised for being unrepresentative of the construction industry, the findings themselves seem interesting and useful.

In the first place, the answers to the questionnaire depended heavily on the type of job the respondent was doing.

Secondly, the role of the foremen was found to be critical to productivity.

Thirdly, and perhaps, most important, the foremen themselves believed that good cooperation between them and the management was vitally important for productivity on a construction project.

Consequently, the researchers concluded that although there may be many ways of improving productivity on a construction project, all of them relate to

"providing adequate support and assistance to the workforce, and establishing a cooperative atmosphere among all levels and parties involved."

This conclusion appears similar to the views expressed by Halsey and Margerison and recently by Hammond⁽¹⁷⁾, the Managing Director of A.P.C. International, who sees successful management of construction process primarily in terms of "People engineering".

A further support for this view is also demonstrated by the recent case involving a Dutch Construction Company - Royal Volker Stevin.

Stevin ran into serious problems on a major contract in Michigan, United States, because of its inability to complete on time the Zilwaukee Bridge.

The company won the £40m. contract in 1979, almost at the same time as it won another £24m. contract, the Orwell Bridge, in Britain. That too, ran into serious financial problems.

The Construction News⁽¹⁸⁾ investigation showed that

"in both cases, poor labour relations, and so low productivity are blamed for the problems, in addition to technical problems".

By the end of 1981, the company was losing about £22.8m. on the two contracts. No doubt, this contributed in no small measure to the company's losses for 1980/81 of over £55m.

Needless to say that no company seriously thinking of remaining in business can go on indefinitely incurring such colossal losses.

This simple case study illustrates the damage which a construction firm can inflict upon itself as a result of its inability to honour its own side of a valid construction contract.

Discussions with various construction managers and foremen revealed that, apart from a sheer lack of management skills to handle the factors involved in the commitment phase, a boom in the building construction industry may also create labour management problems.

It was the view of most of the construction managers and foremen that availability of many jobs when the construction industry is in boom, leads the workers to believing that they can find another job even if they are dismissed from one.

In other words, the easier it is for the construction site worker to find another job if he is dismissed from one construction site, the more the tendency to create some form of problems for the construction firm.

In this regard, the relative decline in construction activities⁽¹⁹⁾ may also be partially responsible for the decline in incidents of site labour relations problems in the building construction industry of Britain.

It was also revealed that the longer the firm is able to keep its workforce together, the less it faces labour problems, since most of the workers become orientated to fit into a pattern of working behaviour which the firm demands of its workers.

Some of the firms pointed out they had strict rules about drinking during working hours, so that anyone found to have taken some alcohol may not be allowed to work for that day, not only for the sake of proper behaviour but also for safety reasons.

What we have discussed so far seems to have centred on the management of the firm's own workforce.

However, as we have stated earlier, the firm must also develop management strategies to deal with other forces or factors such as the sub-contractors, the suppliers, and the owner and his representative, the architect/engineer.

It is therefore logical to look at their role during the production phase and how they can be controlled or managed to enable the firm to achieve its objective(s).

The Sub-contractors

The sub-contractors are a vital component of the construction process. Yet the contractual relationship between them and the firm may present major control problems for the firm during the production process.

In the first place, the sub-contractors are themselves independent contractors. This suggests that they can, at their own risk, if they so desire, breach their contract at any time.

There is no doubt that they can be held responsible for such breach of contract and requested to make remedies accordingly.

However, such remedies of breach of contract do not usually benefit the construction firm, the production phase, or solve the problems which the breach may have created.

There is therefore the need to encourage good understanding and working relationship between the firm and the sub-contractors.

Three ways of exercising some control over the sub-contractors have been suggested. They include⁽²⁰⁾

- (1) Using legitimate contractual payment practices to encourage the sub-contractor to follow directives and perform as requested.
- (2) Making the sub-contractor aware of the business consequences that might result if he does not perform satisfactorily or is uncooperative, and
- (3) Being reasonable and fair in dealing with the sub-contractors.

It must however, be noted that the extent to which the firm can exercise control over the sub-contractors depends on whether they are appointed by the firm or the owner of the construction project.

In any case, this does not reduce the need for the firm to make them aware of the effects of their action on the final outcome of the contract, regardless of how they have been chosen.

Where the firm has the advantage of nominating its sub-contractors, care must be taken to select only those who can perform satisfactorily.

The owner and/or his representative

The problems which the owner and/or his representative can create for the contractor are so serious that the firm must find a way of managing him and/or his representative - the architect/engineer. This is obviously a difficult task and it demands intuition and creativity.

In a normal standard contract, the owner of the project is the other party to the contract. In such a case, the duties of the owner and the architect/engineer are clearly defined within the general contract itself.

This suggests that the firm has no direct control over the owner and/or his representative. Yet their role is so vital for the success of a construction contract that the firm will have some advantage if it could find a way of exerting some influence over them.

One such way is for the firm to try to understand the thinking and behaviour of the owner and/or his representative - the architect/engineer - so that both parties can develop some working relationships, based on mutual understanding and cooperation.

The Materials and Equipment Side

In discussing the materials and equipment side, we must be mindful of the suppliers who play a vital role through the provision of these items.

It is therefore essential that in selecting suppliers, the firm should be sure of the following two factors:

- (1) the location of the suppliers relative to the project; and
- (2) the capacity of the suppliers to produce and deliver on time and as specified.

However, the provision of required materials and equipment is of little value to the firm if they are not effectively handled or managed.

It is in this respect that the application of Materials Management Concept is called for.

Materials Management Concept defined

Materials Management, a concept which has been dealt with extensively by the National Association of Purchasing Management⁽²²⁾ is defined to include:

"purchasing, inventory control, traffic, receiving and production control".

Its basic objective is to achieve the lowest overall cost of materials for the firm.

It is obvious from this definition that the concept recognises that each of the various functions or activities included in the definition is related to others in a complex set of interactions.

In this regard therefore, the Materials Management concept is a "systems" concept, recognising that all functions required to produce and deliver a construction project or product, are related and interdependent on one another.

This also suggests that undue emphasis on one function without adequate consideration of the other functions, may lead to adverse results and consequently defeat the overall objective of efficiency and cost effectiveness which the Materials Management Concept is intended to achieve.

For example, the firm must be ready to receive the required materials and equipment as soon as they arrive on the site. It does not make for efficiency if a fleet of vehicles, bringing supplies to the site, are tied up for weeks waiting to be off-loaded⁽²²⁾.

Storage of required materials is usually a problem on most construction sites, in terms of cost and space, and the possibility that the quality of the materials may deteriorate if they are stored on site for too long.

There is therefore the need, not only to provide proper storage facilities, but also to reduce the problem by using the materials as soon as they arrive on site.

This is largely a matter of scheduling the activities such that the required materials arrive on site when they are actually required for specific activities or functions.

Hired plant and/or equipment for example, are costed in hours per day, not acutally what they do. It is therefore a waste of resources to bring in hired plant or equipment when they are not really needed.

This also brings us to the question of space management. In building projects, for example, particularly in urban areas, most construction sites are fenced for security reasons and/or to comply with some local regulations.

This means that the space within the fence must be managed in such a way that it can accommodate all that it should accommodate, and still provide enough spaces for the movement of site plant or equipment, and the workforce.

A badly managed site space may create materials wastage, possible discomfort for the workforce, and inevitably lead to low productivity.

Thus, as far as the achievement of the firm's objective and that of the customer is concerned, effective management of the resources at the firm's disposal is essential.

Conclusion

Based on our discussion in this Chapter, we can draw the following conclusions.

The commitment phase involves many inputs or factors, and by implication, many sources of risk.

The result is that when all these inputs or factors are taken into consideration, it becomes obvious that a successful completion of a construction product is essentially a matter of integrating effectively each factor into a complete marketing decision process that would enable both the buyer and the seller achieve their objectives.

Thus, while effective management of the firm's human resources, especially the site labour, is essential for a successful completion of a construction contract, this cannot be achieved without efficiency in materials and equipment management.

In other words, the success of the commitment phase depends, to a large extent, on the firm's ability to manage the factors involved. A lack of that ability to manage becomes a major source of risk.

In this regard therefore, 'Management Risk' constitutes the main risk in the commitment or contract execution phase.

REFERENCES

1. Adrian, J J, Business Practices for Construction Management, (1979), op. cit. p 77.
 2. Maher, R P, (1982), op. cit. pp 19-20.
 3. Ward, P A, Organisation and Procedures in the Construction Industry, Macdonald & Evans, 1979.
 4. McNulty, A P, Management of Small Construction Projects McGraw-Hill, 1980.
 5. Fine, B, "Production Management", in, Burgess, R.A. (ed.) Management in the Construction Industry, The Macmillan Press, 1979.
 6. Halsey, R and Margerison, C J, "Managing a Large Construction Site", Management Decision, vol. 16, No. 4, 1978, pp 246-260.
- See for example, the argument in:
7. *McGregor, D*, The Human Side of Enterprise, McGraw-Hill Book Coy., N.Y., 1960.
 8. Maher, R P, Introduction to Construction Operations, John Wiley, 1982.
 9. Adrian, J J, The Construction Management Process, Prentice-Hall, 1981, Chapter 10.
- See for example,
10. Vroom, V et al, Management and Motivation, Penguin, 1981.
 11. Adrian, J J, Business Practices for the Construction Management (1979) op. cit.
 12. Bennett, R, Managing Personnel and Performance, Business Books, London, 1981, p XVI.
 13. Atkinson, I, Construction Management, Elsevier Publishing Coy. Ltd., 1971, Chapter 3.
 14. Hunt, J W, Managing People at Work, McGraw-Hill, 1979.
 15. Fine, B (1979), op. cit.
 16. Borchherding, J D and Garner, D F, "Work Force Motivation and Productivity on Large Jobs", The Journal of the Construction Division, vol. 107, No. C03, Sept. 1981.

17. Hammond, D, "Managing People, the Key to Success", The Construction News, June 3rd, 1982, p. 10.
18. "Trouble for Stevin in U.S.", The Construction News, 18th Feb. 1982, p 1.
19. See for example,
The Construction News, 1st Sept. 1983, p 4.
20. Maher, R P, (1982) op. cit.
21. Webster, FE, Industrial Marketing Strategy, John Wiley & Sons, 1979, p 25.
22. See also the discussion in,
Maher, R P, (1982), op. cit., pp 48-49.

CHAPTER SEVEN

Research Methodology

CHAPTER SEVEN
Research Methodology

Introduction

The main objective of this Chapter is to describe how the Surveys for the study were undertaken, the problems encountered by the researcher, and the outcome of the Surveys.

The Chapter itself is divided into three Sections: Section One deals with the problems associated with asking respondents to provide information on decisions taken in the past. It discusses how the research was designed, and conceptualised. It explains why a particular research technique was chosen for the study, as well as the conditions which led to the choosing of the construction industry as the industry to study.

Section Two is preceded by a brief explanation of why construction customers - the buyers - were included in the study, despite the fact that the study is concerned mainly with 'sellers' as opposed to 'buyers'.

Obviously two types of samples had to be involved: the main sample consisted of construction companies, and the subsidiary sample made up of construction customers. It is the main sample that forms the primary concern of Section Two.

Section Three describes how the survey of the customers was undertaken. It shows that, although the two samples were obviously different, the same research methodology was applied successfully to both of them.

The Chapter concludes by noting that although there was hardly any previous study of a similar nature in the industry which may have provided some indications of the types of techniques that

might be effective, and the possible survey response rate, the methodology adopted for the study was effective as evidenced by the relatively high response rates of the surveys.

Section OneThe Major Methodological issue involved

The decision to base the research on completed construction contracts suggests that the data which would be collected would deal with how contract decisions had been made rather than how they will be made.

This created a major problem of the respondent's recall. In spite of the fact that most (if not all) construction contracts are written and therefore the documents about them may be available for consultation by the respondents, the question of whether the respondents would be able to recall accurately what actually happened when the decisions were being made, still remained.

Some writers⁽¹⁾ for example, have observed that the respondent's perception of a particular decision is frequently modified by subsequent experience. In other words, a form of rationalisation occurs as a result of the respondent's experience of the outcome of the decision.

This would suggest that questions which ask the respondent to give his views on a decision taken in the past, are likely to produce a modified form of information since the respondent's views may be influenced by the outcome of the decision.

Obviously, this raises the question of how far back should the study go, in view of the suspicion which may arise about the reliability and/or validity of the respondent's recall on decisions taken some years ago.

This particular problem is amplified by the fact that, in general, most construction projects take a relatively long time to produce. An alternative way out could have been to request the respondents to base their answers to the questionnaire on any ongoing contracts.

However, while this may have eliminated the problem of hindsight, it would have made it difficult for the respondents to answer all the questions since the questionnaire itself was intended to generate information on all the critical phases through which a construction contract evolves.

In the end, a compromise solution was found. Each of the construction companies in the sample was requested to base all its answers to the questionnaire on any one contract it completed in 1982.

This satisfied the dual requirements of 'recency' of information supplied, and the basing of that information on *completed* construction contracts.

For the customers, this 'recency' requirement was not defined in terms of *specific period*. *They were requested to base their answers to the questionnaire on any one contract they had awarded 'recently'*.

In this way, it was hoped that, although the problem of hindsight may not have been eliminated completely, the research methodology would be able to overcome the main problem of respondent's inability to recall accurately decisions taken in the past.

The Research Design

In designing the research, this researcher was guided by the following two main factors:

- (1) the basic conceptualisation of the research; and
- (2) the choice of the research technique.

The Basic conceptualisation

This thesis is focused around a number of related and broadly based hypotheses about perception and management of risk by construction companies. Specifically, it is centred around the following hypotheses:

That construction companies perceive risk when they tender for and accept construction contracts. Accordingly they take appropriate measures to manage the perceived risk.

That, although the Marketing concept is relevant in the construction industry, a traditional Marketing approach is not effective in the competitive bidding sector of the industry.

That risks in construction contracts are spread over the phases through which the construction contract decision evolves. Therefore, analysis of these phases would enable the construction company to identify these risks and place it in a better position to develop more effective risk management strategies to manage the perceived risks.

Thus, the basic conceptualisation of the research emerged as a study of perception and management of risk by construction companies in terms of a process which continues along the phases through which the construction contract decision evolves.

Obviously, this suggests that the study would not focus on one particular phase, but on all the critical phases through which a construction contract decision process evolves.

This loss of focus on one 'single' decision phase, as opposed to all the decision phases, was justified on the ground that a contract selling decision process is not considered as being successfully concluded until the product is delivered, or the project completed. This has been demonstrated in the preceding Chapters.

Therefore exclusion of some of the phases may not provide the overall picture of how construction companies perceive and manage risks during a construction contract.

Choice of Research Technique

The final choice of research technique is ultimately not only subjective, but it also reflects the researcher's perception of the problem or the conditions under which the research is being undertaken.

Bearing this in mind, a number of research techniques were considered. In particular, the following three alternatives were considered:

- (1) A longitudinal approach through which the required data would be collected over time as contracts were tendered for and accepted by construction companies, and/or awarded by construction customers;
- (2) A personal interview method by which the required data would be collected by the researcher through personal interviews with the respondents - and

- (3) A cross-sectional approach by which the required data would be collected through a structured postal questionnaire.

Each of the above research techniques has its own advantages and disadvantages which were considered very carefully before the final choice was made.

For example, adoption of a longitudinal approach would have created the following two major problems. Firstly, a longitudinal approach requires considerable amount of time and effort, both in securing initial co-operation of the management, and in monitoring the management's decisions as they occur.

Secondly, it requires a considerable degree of commitment from the co-operating managers, so that, where the researcher is not physically present to make direct observations of the decisions and events, the co-operating managers are requested to record the events in a diary form as they occur.

It is obvious that the amount of data which could be collected through the diary approach would depend, not only on the willingness of the managers but also on the nature of information which they put in the diary.

Naturally, such data would be limited since by its very nature, a diary is only suitable for a relatively limited amount of information which could be recorded easily at the time the activity is being monitored.

Thus a longitudinal approach was not adopted as a research technique for this study because of the major disadvantages of time and resources it required.

The second alternative - the personal interview method -

generally enables the researcher to obtain detailed information from the interviewee or the respondent.

The reaction of the respondent to each question can also be observed by the researcher so that questions which may be misunderstood can be explained to him by the researcher.

In turn, the researcher can ask the respondent to elaborate on some answers which may not be clear to him, or provide insufficient information on particular points, or both.

In spite of the above advantages which make this particular research technique an attractive proposition, it was not chosen because of the following reasons:-

In the first place, personal interview introduces the possibility of 'bias', and this could lead to unco-operative behaviour on the part of the interviewee, especially where there are cultural and/or racial differences.

Secondly, personal interview as a research technique, requires a lot of time and resources to administer, especially where the sample to be interviewed is large and scattered over a large or wide area.

The above disadvantages were particularly applicable to this research. Hence the interview method was not used for the research.

The use of structured postal questionnaire was the third and last alternative this researcher considered.

However, in doing so, the researcher was also fully aware that a questionnaire which was detailed enough to explore and generate

the required information, on specific dimensions of management decision making concerning the perception and management of risk, would require a lot of time on the part of the respondent to complete.

As a result, the response rate might be low, creating a further problem of sample representativeness.

Secondly, it was also recognised that, in general, the researcher has no or little control over the environment in which the postal questionnaire is completed, in terms of who actually completes it, how and when it is completed.

The respondent is most likely to go through the questionnaire first, study it, and then makes up his mind about the sort of answers he would give.

Thirdly, the postal questionnaire may not be able to deal adequately with the fact that more than one person is involved in the selling or buying decision making unit in the seller or buyer organisation, in terms of tendering for, accepting, or awarding a construction contract.

Some studies get over this problem by sending more than one questionnaire to each firm, with a request that each person involved in the decision making complete a questionnaire.

However, in analysing the data, the average score for each firm is computed and taken as the overall view of the firm.

Apart from the fact that such an approach is likely to lead to misleading results, especially where the persons involved in the decision process differ significantly in status, experience, and/or training background, the response rate in Abu-Ismail's study⁽²⁾ seems to suggest that most companies are not likely to complete more than one questionnaire.

In such a case, the cost of printing and sending the extra questionnaires becomes a waste of resources which the researcher could ill-afford.

In spite of the above disadvantages associated with the postal questionnaire, it is one of the most widely used research techniques, and it has the following major advantages.

It takes relatively less time to administer, and it is relatively less expensive. It is particularly suitable where the sample companies are many and scattered over a wide area. Unlike the personal interview method, postal questionnaire reduces the problem of 'bias' on the part of the respondent due to cultural and/or racial differences between the researcher and the respondent.

These advantages suited very much the conditions under which this research is being undertaken. For example, the sample organisations were scattered all over Britain, and this researcher could not afford the resources and time required to carry out the research through the use of any of the other techniques described above.

In view of the above circumstances therefore, it was decided that the postal questionnaire was the most suitable technique to use for the collection of the required data for the research.

Choice of Industry to Study

The choice of the industry to study was based on that industry meeting all the necessary and sufficient conditions laid down by this researcher. Basically, three main criteria were used to choose a suitable industry to study.

Firstly, the industry must be important in the national economy in terms of employment and its contribution to the general development of the country.

Secondly, the industry must be producing and marketing capital products. These two criteria were particularly relevant or significant in the economic development of Nigeria on which the study was initially intended to be based.

The third criterion was the personal interest of this researcher.

After a careful consideration of a number of industries, it was found that the construction industry satisfied all the above criteria.

Therefore it was on that basis that the construction industry was chosen for the study.

Sample design

This study is concerned primarily with 'sellers' - construction companies - as opposed to 'buyers' - construction clients or customers.

However, it was considered useful to include construction customers also, so that this researcher would be able to compare the views of the 'sellers' with those of the customers, and use same to reinforce or buttress those of the sellers on particular points in the study. It was for this reason alone that construction customers were also included in the study.

Obviously this meant that two types of samples would be involved. The first sample would be made up of construction

companies. This would be the main sample which would form the primary concern of the study.

The second sample would consist of construction customers. This would be a subsidiary sample with the sole objective of providing some supporting evidence for the findings based on the main sample.

Thus, two samples were designed: one for construction companies, and the other for construction customers.

These two samples are described below in separate sections. However, in doing so, more emphasis has been placed on the main sample for the obvious reason.

Section Two

The Main Sample - (Construction Companies)

The exact number of companies operating in the British Construction industry is difficult to determine or establish.

This is mainly because, the relative ease with which construction companies can enter and leave the industry because of bankruptcy or other reasons, has rendered out of date any existing records on the number of companies which are operating in the industry.

In spite of this shortcoming, three published sources were used as the sampling frames. The first source was Kompass⁽³⁾ which provided the names, addresses and the technical capacity or capability of the firms.

The second source was Dun and Bradstreet's Guide to Key British Enterprises (KBE)⁽⁴⁾ which also provided the names, and addresses as well as the names of the Managing Directors, Chairmen, General Managers, and Managers. The same source also provided information on annual sales of most of the companies.

However, the information on the annual sales of the companies was found to be inadequate in the sense that it referred to one year only. Therefore, another source had to be found which would provide up to date information on annual sales turnover of the companies for a number of years.

It was for this reason that the third source - The Construction News Financial Review - was consulted⁽⁵⁾. This source provided more up to date information on the annual sales turnover of the companies for the past five years (1977-1982).

However, the use of the above sampling frames did not necessarily simplify matters for this researcher when it came to determining the size of the sample. This was because there had been no previous study which would have provided the researcher with some indication of how the respondents in the industry would react to a detailed questionnaire. Any rough idea which this researcher had, came mainly from the result of the pilot survey which was rather limited in scope.

In the end the size of the sample was determined on the basis of the following criteria:

First the sample size must be such that it would yield a minimum response rate of twenty five percent (25%).

This in itself did not help matters very much in the sense that a sample size of twelve companies would still yield the minimum twenty five percent (25%) response rate if three of the sample companies responded to the questionnaire.

Therefore, a second criterion was introduced. It was that the sample size must also be large enough to expect a response from at least fifty of the sample companies.

It must also represent the various sizes of the sample companies in such a way that the response rate would be a fair representation of all the sizes included in the sample.

After a careful consideration of the above criteria, a sample size of two hundred companies was selected on a random basis.

In spite of the fact that the sample was intended to include mostly firms in the building and Civil Engineering sectors of the industry, it was not possible to make any meaningful classification

of the firms in the industry into major categories in terms of their commercial activities.

This was because most of the large firms have facilities or capacity to undertake both civil and building construction projects, as well as other types of construction projects for that matter.

Therefore, rather than classify the firms into categories, the researcher had to classify, from completed and returned questionnaires, the types of projects on which the answers to the questionnaire were based. This will be found in Table 5.

Questionnaire Design

(a) For Construction Companies.

This study was basically conceptualised as perception and management of risk by construction companies along the critical phases through which the contract decision evolves.

Therefore, the questionnaire was designed to take account of the critical decision phases in a construction contract.

The questionnaire itself was divided into four Sections - A, B, C and D, which covered the following critical decision phases respectively:

- (1) Pre-tendering phase
- (2) Tendering phase
- (3) Negotiation phase and
- (4) the commitment or contract execution phase.

The main objective of the questions in each Section was stated clearly before the beginning of the questions. For example, although there were questions about how the contract was obtained, its type, and the nature of the customer, the main objective of the questions in Section A was to find out the effort which the sample company may have made concerning the contract before the bidding or tendering phase.

The questions in Section B were mainly concerned with how the sample companies prepared and submitted their bids, the factors they took into account, who formed the 'selling decision centre' and the effort the companies made after the bids had been submitted.

In Section C the main objective of the questions was to find out whether the sample companies expected particular results from their bids, and how prepared they were for any subsequent negotiation with the customer.

Finally, the questions in Section D had as their primary objective to find out the extent to which the wording of the contract legally protected both the customer and the construction company from certain types of risk, the problems which the company may have encountered during the execution of contract phase, and the factors which may have influenced the success or failure of the contract.

It seems obvious that, in general, most of the questions were designed to solicit information about the behaviour of each sample company in terms of its perception and management of risk in each of the crucial decision stages stated above.

Piloting the Questionnaire

Once the questionnaire had been designed the researcher piloted it. In piloting the questionnaire, the researcher also had a number of discussions with some of the selected companies that were in Glasgow. The questionnaire was also delivered to them personally by the researcher.

For the selected companies that were outside Glasgow, the questionnaire was mailed to them with self-addressed stamped envelopes.

A covering letter was attached to each questionnaire. In the letter, the respondent was requested to go through the questionnaire carefully, and then give his candid views on the following two basic questions which were detailed at the end of the covering letter.

- Q1. Do you find any particular questions difficult to understand?
(If so please state which questions)
- Q2. If this questionnaire were sent to you, would you be prepared to answer the questions? (If your answer is 'no' please give reasons).

These two questions were designed to ensure that the piloting of the questionnaire achieved two main objectives:

Firstly, to ensure that the questions were not ambiguous or difficult to understand, and

Secondly, to ensure that the final questionnaire would give a meaningful response

Modifications were made to the original draft in line with the

comments or suggestions made by the respondents, most of whom were personally interviewed by the researcher.

The response rate of the pilot survey was more than eighty percent (87.5%). This in itself was nothing to go by since most of the questionnaire were collected personally by the researcher.

Therefore, in spite of the encouraging response rate, it was suspected that a postal survey of this nature with relatively long questionnaire might lead to a low response rate if response rates of previous surveys of other industries, conducted by such a technique were anything to go by.

Two main alternatives were therefore considered by the researcher. The first alternative was to remove or minimise the possibility of low response rate by reducing the length of the questionnaire, and excluding some of the issues it dealt with.

Obviously, this would have meant a high response rate at the expense of insufficient data on the issues which the research was intended to cover.

The second possibility was to leave the questionnaire as it was on the understanding that, although the response rate could be relatively low, this could be more than compensated for by the relative 'richness' or adequacy of data which the study or survey would generate.

This particular alternative was considered to be most appropriate in the context of this study. Therefore, it was adopted and the sample size was fixed finally at two hundred (200) construction companies.

It was hoped that this would reduce the possibility of unrepresentativeness in the sample.

Choice of Respondents

The questionnaire which was finally mailed out to the respondents contained a covering letter which introduced briefly (in absentia) the researcher, and what he was doing. (See appendix 1)

It assured the respondent that neither he nor his organisation would be identified, and that the information supplied through the questionnaire would be treated with strict confidence and used only for the research purpose.

The letter concluded by thanking the respondent for his anticipated co-operation on which the success of the research depended.

In spite of the fact that the 'selling decision centre' (SDC) of a construction company would most probably be made up of a number of top company officials, such as the Managing Director or the Chief Executive, and the Estimator, only one questionnaire was sent to each of the sample companies because of the following reasons.

First, this researcher does not share the view that sending more than one questionnaire, as some studies have done (6) to each company, and using the aggregate responses of respondents from within each company, can eliminate the problems of analysis of multiple response.

Parkinson⁽⁷⁾ for example, has pointed out that differences in status in respondents and differences in the extent of their participation in decision taking are not readily encompassed by average scores from each organisation.

Secondly, results from a number of previous research studies seem to suggest that even where more than one questionnaire is sent to each of the sample organisations, most of them are most likely to return only one questionnaire. In this case the cost of producing and posting the extra copies of the questionnaire cannot be justified.

Thus, to ensure that the questionnaire was completed by at least one of the key decision makers in each organisation, each questionnaire was addressed directly to the Managing Director of each of the sample companies with a request that he complete it "or direct it to the appropriate person(s) in your company who can answer the questions, and then return the questionnaire as soon as possible, in the stamped, addressed envelope provided."

The following Tables 1 and 2 below show the managerial positions of those who responded to the questionnaire, and the overall response rate of the survey respectively.

Table 1
Respondents' positions in their companies

Managerial Positions	No	%
Directors	34	36.1
Managing Directors	31	33.0
Commercial/Marketing Managers	10	10.6
Chief Estimators	8	8.5
Project/contract Managers	4	4.3
Executives	4	4.3
Operations/contracts co-ordinators	2	2.1
Chief Engineer	1	1.1
Base	94	100.0

Table 2
The Survey Response Rate

	No	%
Mail out	200	100.0
Usable Replies	94	47.0
Non-usable Replies	33*	16.5
Total Response	127	63,5

*The reason given for most of the non-usable replies was that the companies did not complete any construction contracts of at least £750,000 in 1982.

The response rate presented in Table 2 above was considered high enough to satisfy the response rate minimum requirement of twenty five per cent (25%).

It was possible that this response rate could have been improved by sending out reminder letters with follow-up copies of the questionnaire to those companies that had not replied or returned the first questionnaire by the end of August 1983.

However, this particular line of action was not followed because the cost of the research was borne entirely out of the researcher's meagre resources, and this imposed a serious financial constraint for any extra action other than those considered to be necessary.

Sizes of the Responding Companies

The sizes of the various companies that responded to the questionnaire are presented below in Table 3. The classification was based on the mean of the annual turnover of the companies from 1978 to 1982. The information was provided by The Construction News 29 July 1982 and 28 July 1983.

Justification for Using the Criterion

A number of criteria are used to classify business organisations for the purpose of research. In Marketing some of the criteria which are used frequently include the following:-

- (i) the number of employees each organisation has
- (ii) the market share held by each of the organisations and
- (iii) the assets of each of the organisations.

However, none of these criteria was found suitable for this research because of the following reasons:-

In the first place, the number of people employed by an organisation may no longer be an indication of the size of the organisation in terms of its overall resources.

This is because some organisations use high technology (such as robots) which reduces the number of people employed without necessarily reducing the overall resources of the organisation concerned.

It may be argued that, in the construction industry, the use of such high technology is not yet a common feature. Nevertheless, the dramatic improvements in construction methods, aided by prefabrication technology, seem to suggest that some companies can reduce the number of their employees without a corresponding reduction in their sizes, in terms of their overall resources.

As a matter of fact, during a careful examination of the information on the sample companies, it was found that some of them had a small number of employees. Yet, their sales turnover was relatively large.

Therefore, it seems obvious that using the number of employees as the basis for classification would put such companies in a wrong category.

Market share is popular with researchers in marketing, though it could be misleading especially where the company is operating in many sectors of different markets, or industries.

In the case of this study, it was not used as a criterion because this particular piece of information was not available. Most of the sample companies this researcher contacted for the purpose were not sure themselves. Therefore, it was felt that classifying the sample companies on the basis of "guess-work" would be quite unacceptable.

Assets of the companies were also not used as a basis for classification. This was because of the difficulty of defining and ascertaining the true values of assets owned by the construction companies concerned.

In view of the above reasons, it was felt that the mean annual turnover of the sample companies from 1978 to 1982 appeared to be the most representative of the positions of the companies concerned.

Another reason for choosing the mean turnover as a measuring criterion was that, apart from being an indication of their financial strengths, it was also suspected that the turnover of the companies may have some bearing on the perception of risk by the companies.

Therefore it was chosen as the most appropriate criterion to be used for the purpose of classifying the sample companies for this particular study.

Table 3
Sizes of the Responding Companies:
Measured by Annual Turnover

Annual Turnover (in £m)	Size	No	%
10 - 100	Average	39	41.5
101 - 400	Above Average	30	31.9
401 - 800	Large	20	21.3
Above 800	Very large	5	5.3
Base		94	100.0

Sectors in which the Sample Companies operate

The construction companies which made up the sample were operating mainly in the "non-speculative" sector of the industry.

"Speculative sector" of the construction industry is defined as the sector in which, at their own costs, construction companies develop properties, such as houses, to be sold to the public or any interested buyer.

This means that construction companies, (such as Barratt) which operate in the speculative sector of the industry, were not included in the sample, except where such a company (such as George Wimpey) was operating in both speculative and non-speculative sectors of the industry.

Thus, the sample consisted mainly of companies that were operating in the competitive bidding sector of the construction industry.

This was necessary because of the main concern of the study, which has been stated already.

Values of Contracts on which answers to the questionnaire were based

The values of the various contracts on which the responding companies based their answers to the questionnaire are presented in Table 4 below. To some extent they reflect two factors:

- (1) the sizes of the companies that were covered in the survey and
- (2) the requirement in the questionnaire which requested the respondents to base their answers to the questionnaire on contracts of at least seven hundred and fifty thousand pounds (£750,000).

The above factors were not entirely of the researcher's own making. Rather, they were due to circumstances which could be described as "coincidental".

During the preliminary investigation, it was found that, unlike small companies, most medium (average) and large construction companies have Marketing Departments, headed by Marketing Directors or managers.

It may be recalled that one of the main concerns of this study is the application of Marketing as a possible risk management strategy.

Therefore it was felt that it was more realistic to test the hypothesis using construction companies that had Marketing Departments or facilities.

Incidentally, because of the technical capability or capacity of these companies, most of them tend to go for contracts of relatively high values in monetary terms.

This tendency is also economically justified on the ground that spreading scarce resources over a large number of small construction projects of small values may be economically less rewarding than if those resources were concentrated in a limited number of relatively large projects of high monetary values.

Thus more than eighty two percent (82.4%) of the contracts on which the answers to the questionnaire were based exceed one million pounds in value.

It is left to be seen whether this has any relationship with perception of risk by the sample companies.

Table 4
Values of the Contracts on which answers
to the Questionnaire were based

Contract Values (in £000)	No	%
271 - 400	7	7.7
401 - 800	5	5.5
801 - 1200	16	17.6
1201 - 1600	17	18.6
1601 - 2000	8	8.8
2001 - 2400	11	12.1
2401 - 4000	11	12.1
4001 - 8000	11	12.1
8001 - 40,000	5	5.5
Base	91*	100.0**

* Three (3) contracts have been excluded from the above table because their values were not given by the respondents.

** The values of twenty eight (28) of the contracts (ie 30.4%) were estimated values.

Types of projects on which answers to the Questionnaire were based

The difficulty of classifying the sample companies on the basis of different types of construction activities in which they were involved has already been stated.

Because of this, it was left to the respondents to choose which contracts they would base their answers on.

The breakdown of these contracts shows that they fall into the categories shown in Table 5 below, which would seem to provide a reasonable cross-section.

Table 5
Types of construction projects on which
answers to the questionnaire were based

Types of Projects	No	%
Building	59	62.7
Civil Engineering	24	25.6
Others	11	11.7
Base	94	100.0

This concludes the discussion of the research methodology which, so far, has been concerned mainly with construction companies - the main sample.

In the following section therefore, the discussion of the research methodology will be primarily concerned with construction customers.

Section Three
Construction Customers - (subsidiary sample)
Research Design

Just as it was difficult to determine the exact number of firms - sellers - operating in the British construction industry, so also it was difficult to establish the number of buyers of construction projects in Britain. This would suggest that determining a sample size which represented proportionally the various types of buyers was not possible.

Nevertheless, some effort was made to ensure that the major groups of buyers were represented in the sample, though not necessarily proportionally.

Three sources were used as sampling frames. This was necessary because, on its own, none of them provided enough information to be used as the only sampling frame. For example, the first two sources, which were the same as the first two sources used as sampling frames for the construction companies, did not provide adequate information on public authorities or customers.

Therefore, it was essential that another source which provided adequate information on public customers should be used or consulted.

Thus, The Public Authorities Directory⁽⁸⁾ was consulted to obtain the required information on public customers who had been included in the sample.

The sample size itself was fixed finally at one hundred and fifty (150) cases. All the organisations which were included in the sample were selected on a random basis.

However, the only criterion used to determine the composition of the sample size was that the various major groups of buyers should be fairly represented in the sample.

The composition of the sample is shown below in Table 6.

Table 6
Composition of the Sample (Construction Customers)

Types of Customers	No	%
Central Government Departments	10	6.7
Regional and Local Authorities	50	33.3
Nationalised Corporations	5	3.3
Financial Institutions	25	16.7
Services Organisations	15	10.0
Manufacturing Organisations	15	10.0
Distributive trade Organisations	15	10.0
Oil companies	5	3.3
Educational Institutions	10	6.7
Base	150	100.0

Questionnaire Design

The design of the questionnaire for construction customers followed the same pattern as that of the sellers, though the questionnaire itself was shorter than the one for construction companies.

The questionnaire was divided into four sections, A, B, C, and D. These Sections corresponded respectively to the four critical decision phases which were stated in the Section dealing with construction companies.

The questions in each Section were designed to achieve particular objectives. For example, although the questions in

Section A sought to generate information which was rather general in nature about the sample organisation, the main objective of the Section was to find out whether the buyer was influenced in any way by sellers before tenders for the contract were invited.

The Section also contained a key question about whether the buyer perceived any risk in his decision to award the contract, and if so, what did he do about it.

In Section B, the questions were concerned mainly with how the buyer organisation evaluated and selected the winning bid. In particular, they were concerned with who constituted the Buying Decision Centre (BDC) and the factors which they considered in making their buying decision.

In Section C the main objective of the questions was to find out how the contract was worded, the event(s) that may have taken place during the execution of the contract, and the effect of such events on the contract.

In particular, the questions sought to find out the types of clauses that were included in the wording of the contract, whether they were applied, and whether there was any variation in the original specifications or design of the project before its completion.

Section D was the final Section of the questionnaire. Its main objective was to find out whether the buyer organisation was satisfied with the performance of the seller, and at what stage in the contract decision process he would like to involve the seller.

Basically, therefore, the questionnaire was designed to explore contract buying decision making by construction customers, the factors which may affect their decision from pre-tender phase

through contract execution phase, and their assessment of that decision after the purchased product had been delivered.

Piloting the Questionnaire

Ten organisations, made up of two each from public organisations, financial institutions, services organisations, distributive trade organisations, and educational institutions, were chosen for the pilot survey.

A covering letter was attached to each pilot questionnaire requesting the respondent to go through the questions, and make his comments about them in terms of whether any of them was/were difficult to understand or ambiguous, and whether he would be willing to answer the questions if such a questionnaire were sent to him.

Since the chosen organisations for the pilot survey were in Glasgow, the researcher delivered the questionnaire personally after which appointments were made with the respondents as to when to come back to collect the questionnaire and to discuss it with them.

However, although the financial institutions and distributive trade organisations agreed to discuss the questionnaire with the researcher, they pointed out that they had to send it to their head offices, which were outside Glasgow.

Three of these questionnaires were returned to the researcher by post with favourable comments. The rest of them were collected personally by the researcher on the dates appointed by the respondents. Most of them had already made their comments about the questionnaire on the spaces provided.

Nevertheless, some discussions were held with most of them to find out more about their views. The questionnaire which emerged finally (see Appendix 4) took into account most of the comments or points raised by the respondents.

Since sixty percent (60%) of the questionnaires were collected personally by the researcher, the pilot survey itself could not be used as an indication of the possible response rate of the actual survey when the questionnaire would be mailed out to the sample organisations.

Therefore, although the question of having a minimum of replies from at least fifty organisations was no longer a criterion for selecting the size of the sample, as it was in the case of construction companies, the size of the sample was fixed finally at one hundred and fifty (150) customer organisations.

In this way, it was hoped that, although the possibility of unrepresentativeness of the sample could not be eliminated, it may be reduced.

Choice of Respondents

Only one questionnaire was mailed to each of the sample organisations because of the same reasons as those given already in the case of construction companies.

A covering letter was attached to each questionnaire. The contents of the letter were the same as those of the one attached to the questionnaire for construction companies.

However, because of the nature of the composition of the sample, some of the questionnaires were addressed to Managing Directors, while those mailed to public customers were addressed to the Chief Executives of the organisations.

However, as it can be seen in Table 7 below, the people who actually responded to the questionnaire were neither the Managing Directors (apart from one case) nor the Chief Executives to whom the questionnaires were addressed.

It is obvious that in each of the sample organisations the questionnaire was directed, as the covering letter had requested, to the person who was considered most appropriate to answer the questions.

Thus it seems reasonable to conclude that the questions were answered by those who had actually taken part in the decision making concerning the contract on which the answers to the questionnaire were based.

The managerial positions of the responding customers are presented in Table 7 below. In Table 8 on the other hand, the overall response rate of the survey is presented.

The response rate was considered high enough to serve the purpose for which the survey was intended.

Therefore reminder letters or follow-up copies of the questionnaire were not sent to the sample organisations that did not respond by the end of August 1983.

Table 7
Managerial Positions of the responding customers

Respondents' Managerial Positions	No	%
Quantity Surveyors	Chief	12 15.0
	Principal	9 11.3
Architect	Chief	15 18.8
	Principal	12 15.0
Engineers	Chief	5 6.3
	Principal	2 2.5
Managing Director	1	1.2
Directors	10	12.5
Technical Services and Planning Officers	5	6.3
Estate Surveyors	1	1.2
Building Survey	1	1.2
Chief Buyer	1	1.2
Chief Administrative Officer	1	1.2
Base	80*	100.0

* Four (4) responding customers did not answer the question about their managerial positions. Therefore they have been excluded from the total number of responding customers.

Table 8
Survey Response Rate

	No	%
Mail out	150	100.0
Usable replies	84	56.0
* Other replies	17	11.3
Total Replies	101	67.3

- * The reason given for most of the non-usable replies was "lack of staff" to deal with the questionnaire because many members of staff of the sample organisations had gone on summer holidays.

Value of the Contracts on which Answers were based

The values of contracts, on which the responding customers based their answers are presented in Table 9.

One observation which may be made about the value of the contracts in Table 9 is that, unlike the construction companies, the customers based their answers on contract of relatively low values. For example, more than seventy one percent (71.6%) of the contracts had values of less than one million pounds each.

This contrasts sharply with the values of the contracts in Table 4 where more than eighty two percent (82.4%) of the contracts had values of more than one million pounds each.

Table 9

Values of Contracts (in £000)	No	%
50 - 300	22	29.7
301 - 500	9	12.2
501 - 700	16	21.6
701 - 900	6	8.1
901 - 1200	4	5.4
1201 - 1600	7	9.5
1601 - 2000	3	4.1
2001 - 3000	3	4.1
3001 - 5000	1	1.3
5001 - 7000	2	2.7
7001 - 9000	1	1.3
Base	74*	100.0

- * Ten of the respondents did not give the values of the contracts on which they based their answers to the questionnaires. For this reason alone, they have not been included in the number of contracts which are presented in Table 9 above.

It remains to be seen whether this difference will also have some noticeable influence on the perception of risk by the two groups of respondents.

Conclusion of the Chapter

The uncertainty which surrounded the outcome of the surveys arose mainly from the fact that there had not been any similar research which had been undertaken previously in the construction industry which would serve as an indication of what techniques to use and what the response rates were likely to be. Therefore, any decision concerning these matters were based solely on the researcher's judgement.

In spite of this, and especially the fact that the questionnaire for the construction companies was long, the surveys response rates for both the construction companies (63.5%) and customers (67.3%) were good and considered high and representative enough to serve the purpose for which the surveys were undertaken.

On that basis therefore, it seems reasonable to conclude that the surveys have been a success, but that that success is a confirmation of the suitability of the methodology adopted or used.

References

See the discussion of this particular problem in

1. Parkinson, S T "User-Supplier Interaction in New Product Development", Unpublished PhD 1980, pp 212-3, University of Strathclyde, Glasgow.
2. Abu-Ismail, F A E, "Predicting the Adoption and Diffusion of Industrial Product Innovations" Unpublished PhD 1976, p 299, University of Strathclyde, Glasgow.
3. Kompass Vol 1, United Kingdom 1983, in association with CBI pp 2587-2613
4. Key British Enterprises Volumes 1 and 2 1983, Dun and Bradstreet Ltd, Directories Division, London.
5. The Construction News, 29 July 1982.
28 July 1983
6. See Abu-Ismail, F A E (1976) for example op cit p 297.
7. Parkinson, S T (1980) op. cit. pp 222-3.
8. Smith G (ed.) Public Authority Directory, Brown, Knight and Truscott (Holdings) Ltd., Publications Division, London.

CHAPTER EIGHT

Analysis of the Sample Survey

Chapter Eight

Analysis of the Sample Survey

Introduction

The main objective of this Chapter is to present an analysis of the response to the survey of construction companies (and customers) in the British construction industry. The Chapter itself is divided into three sections which correspond to hypotheses $H_1.$, $H_2.$ and $H_3.$, respectively.

The Hypotheses

In the review of literature on perceived risk, we observed that previous research on perceived risk has been concerned mainly with buyers as opposed to sellers.

This preoccupation with buyers seems to be based on an implicit assumption that only buyers perceive risk in their decision making process.

Therefore, the purpose of the survey was to examine how construction companies interpreted their contract decision making process in terms of perception and management of risks.

This was stated in the first hypothesis as;

$H_1.$ That construction companies perceive risks when they tender for and accept construction contracts. Accordingly, they take appropriate risk management strategies to manage the perceived risks.

However, a careful examination of hypothesis $H_1.$ would show that it has two parts: the first part deals with risk perception

by construction companies, while the second part is concerned with risk management strategies which construction companies employ to manage what they perceive as risks.

Accordingly, these two parts of the hypothesis H_1 are restated as follows:

- $H_{1.1}$. That construction companies perceive risks when they tender for and accept construction contracts.
- $H_{1.2}$. That construction companies take appropriate risk management strategies to manage perceived risks.

In the review in Chapters Three and Four, the importance of marketing and its concept was emphasised, with subsequent conclusion that the marketing concept was "Omniapplicatus", and that the construction industry could ill-afford to ignore it.

However, the question still remained as whether "applicability" of the marketing concept in the construction industry was synonymous with application of most "traditional marketing methods" in the industry with the same results as in other less "restrictive" industries.*

Rodger⁽¹⁾ for example, has maintained that acceptance of the marketing concept is a prerequisite for a successful application of marketing techniques.

* A "restrictive" industry is defined as one in which the business activities are governed by rules and regulations devised within the industry itself, and/or without, by public authorities, in order to control behaviour and the pattern of buying/selling decision making process of the industry's participants.

In this regard therefore, the extent to which marketing techniques can be applied successfully in an industry is an indication of how much the marketing concept itself is accepted in that particular industry.

In the competitive bidding sector of the construction industry, it would seem that, in spite of the relevance of the marketing concept, the practice of marketing itself is relatively lacking, and the application of traditional marketing methods, such as advertising, personal selling, distribution, packaging, seems less fruitful or effective.

Therefore, marketing in the construction industry should take on more seriously the planning/market appraisal function to ensure sales and delivery.

This was stated in the second hypothesis, H_2 . as;

H_2 . That a traditional marketing approach is not effective in the competitive bidding sector of the construction industry.

We also maintained in Chapter Four that in most construction companies, the function of the marketing department was basically that of market research/sales force, in a limited sense.

Therefore, H_2 . was restated to included $H_{2.1}$. as;

$H_{2.1}$. That in most construction companies, the marketing department is not regarded as an important part of the "Selling Decision Centre" of the company.

The review in Chapters Five and Six demonstrated that a construction contract decision process was basically a

buying/selling decision process which evolves through decision phases.

Therefore, effective management of risks must involve management of risks along the phases through which the contract decision process evolves. In other words, to be effective, the firm must analyse the decision phases in order to identify the inherent risks.

This was stated in the third hypothesis H_3 . as;

H_3 . That in contract decision making, an analysis of relevant 'focal points' is essential for effective management of risks in the contract.

The review in Chapters Five and Six had identified the bidding phase and the Commitment or Contract execution phase respectively as the most critical phases in a competitive contract.

Therefore, hypothesis H_3 . was extended to include hypotheses $H_{3.1}$. and $H_{3.2}$., which were stated as;

$H_{3.1}$. That the bidding phase offers the firm the opportunity to apply its marketing/risk management strategies.

$H_{3.2}$. That 'Management risk' constitutes the main risk in the contract execution phase.

Statistical tools used for analysis

In spite of the hypotheses, this research is basically exploratory in nature. Therefore, some of the questions were designed to provide relevant information which would allow some conclusions to be made about certain aspects of the industry of

study without necessarily involving the use of sophisticated statistical analysis.

The analysis of the entire data itself has been undertaken through the use of the computer, using the SPSSX Command Procedures.

In this way, it was possible to group all the answers from the questionnaires into frequency tables, from which further analysis is carried out where necessary.

The types of statistical techniques which have been used to analyse the data for specific purposes depends on the nature of the data itself, and/or the question from which the data is derived.

For questions offering YES/NO/Don't Know alternatives, cross-tabulation procedure has been used as a means of analysis.

However, because of the limitation of cross-tabulation as a tool for analysing data, especially where the variables involved have more than three values, analysis of variance (ANOVA) has been used where the variables involved can be reasonably assumed to be continuous, and have interval properties.

For the purpose of establishing the existence and/or non-existence of relationships between dependent and independent variables, as well as the strength and direction of the relationships, the correlation coefficient has been used where the data is suitable.

The suitability of the data is important if the correlation analysis is to produce worthwhile results. Nie, et al⁽²⁾ for example, have maintained that, while

"Pearson Product-moment Correlations are used, in general with interval scales",

(i.e. the distances between any two numbers of the scale are distributed in known sizes)

"The Spearman and Kendall rank-order correlation coefficients are generally used with ordered variables".

(i.e. the values of data are "numeric" and can be arranged in increasing or decreasing order).

Regarding the efficiency of the Spearman and Kendall's Correlation Coefficients, Siegel⁽³⁾ observed that both of them

"utilise the same amount of information in the data, and thus, both have the same power to detect the existence of association in the population".

In spite of this, Kendall's Correlation Coefficient is preferred to Spearman's because "the number of categories concerned are small"⁽⁴⁾.

Thus, because the scale of the questionnaire included a relatively small number of categories (i.e., 1,2,3,4,5,6,7) and considering Anderson's⁽⁵⁾ point that the type of scale should not affect the use of such non-parametric techniques, the choice of Kendall's Correlation Coefficients to present the relationships between the dependent variable, and independent variables, in Tables 23D and 23E seems justified.

* However, in some cases, conclusions are based on the frequency tables, where it is believed that the results cannot or may not be meaningfully improved by further use of statistical techniques.

Perception of risk by construction companies

In Table 10A below, perception of risk by construction companies is illustrated. The Table itself is based on the answers which construction companies gave to a question which asked them to say whether they perceived any risks in their decision to tender for and accept the contracts on which they based their answers to the questionnaire.

Table 10A

Perception of risk by construction companies

Variable	Perceived risk	Did not perceive risk	N	Base %
Risk Perception	61 *(64.9)	33 (35.1)	94	100.0

* To be read: 64.9% of the responding companies perceived risk when they tendered for and accepted construction contracts.

It is obvious from the results in Table 10A, that most construction companies perceived risk in their decisions to tender for and accept construction contracts.

However, the results also show that thirty five percent (35.1%) of the responding companies did not perceive risk in their decisions to tender for and accept construction contracts.

This seems to serve as an indication that perception or non-perception of risk itself is a function of some factors. Therefore, the question is no longer whether construction companies perceive risks in their selling decision making process, but the factors which affect their perception of risk.

In Chapter Two, we identified some of the major factors which previous research on perceived risk has found to have considerable influence on perception of risk by decision makers.

Such factors included contextual and situational variables, such as

- (i) the size of the organisation concerned,
- (ii) the amount of money involved; and
- (iii) the managerial position of the decision maker or the respondent.

Therefore, in the present case, it seems reasonable to suspect that perception of risk by construction companies is likely to be influenced by the above factors, in addition to:

- (iv) the wording of the contract;
- (v) the type of contract; and
- (vi) how knowledgeable the customer is about his needs.

Therefore, we shall examine the possibility of any relationship between these variables and perception of risk by construction companies - the dependent variables.

This will be accomplished in the following ways:

- (a) where the variables involved could be assumed to be continuous and have interval properties, then, an analysis of variance is produced.
- (b) However, where these assumptions cannot be made about the variables concerned, then a cross-tabulation is produced to examine the relationships between the dependent and independent variables.

In using an Analysis of Variance (ANOVA) as a tool of measurement, this researcher is aware of Siegel's⁽⁶⁾ contention that its use may reduce the efficiency of the result by up to ten percent (10%), thereby, increasing by the same percentage the chance of coming to wrong conclusions from the data.

However, this researcher does not consider the possibility of a ten percent (10%) margin of error as too high a risk for some of the findings of the research of this nature. Nor does he share the implied generalisation that Siegel's comparative ten percent (10%) margin of error makes other statistical tools of measurement correspondingly superior to Analysis of Variance (ANOVA) where its application is also appropriate.

Therefore, in some cases, Analysis of Variance is preferred to cross-tabulation because, unlike cross-tabulation which would have required the companies or values of contracts to be reduced to simply two sizes, analysis of variance allowed the researcher to preserve the range of sizes of the responding companies, and the values of contracts.

Thus, the relationships between perceived risk - the dependent variable, the size of the company, and the value of contracts, are

examined by an analysis of variance, using the SPSSX Multiple Classification Analysis (MCA) statistics option.

Table 10B
Relationship between Risk Perception
and Company Size

	DF	F value	Significance of F
Main Effects	3	3.356	0.022
Company Size	3	3.356	** 0.022
Explained	3	3.356	** 0.022
Number of Cases Processed: 94			
<u>Multiple Classification Analysis</u>			
Independent Variable & Category	N	Unadjusted DEV'N (ETA)	Adjusted for Independents DEV'N (BETA)
<u>Company Size: **</u>			
1. Average	39	0.16	0.16
2. Above Average	30	- 0.18	- 0.18
3. Large	20	- 0.00	- 0.00
4. Very Large	5	- 0.15	- 0.15

** To be read: There is an inverse relationship between Risk Perception and company size. This inverse relationship is significant at 95% level of confidence or better.

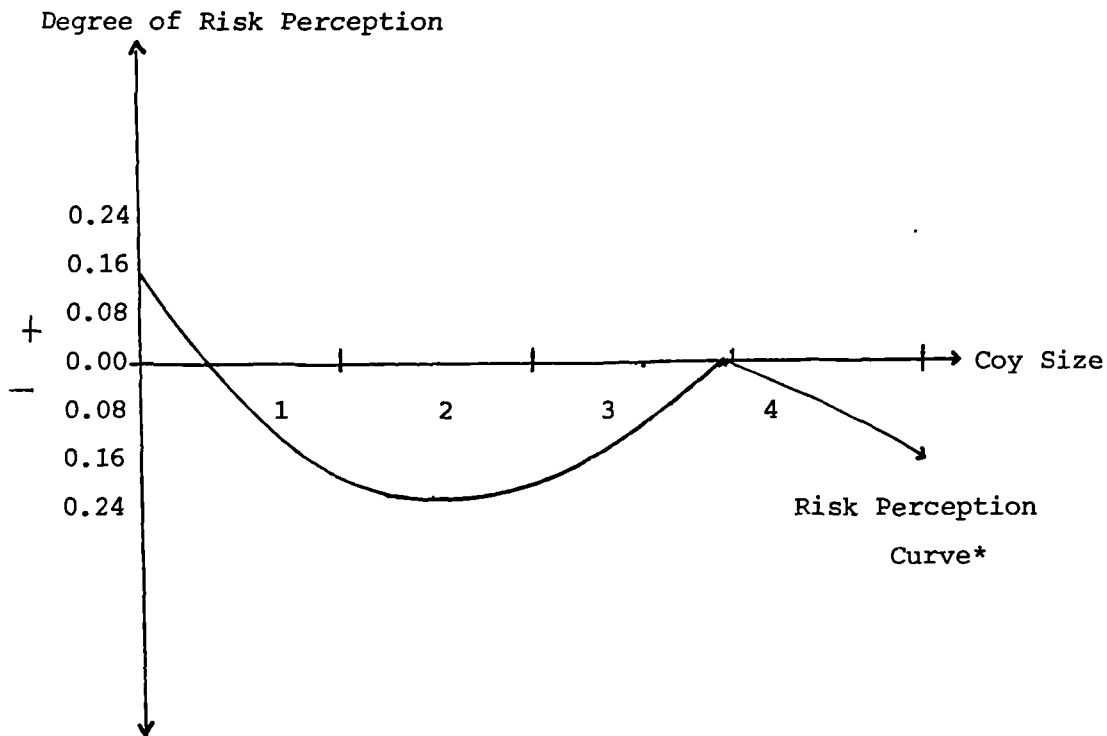
In Table 10B, the result of an analysis to determine the relationship between the dependent variable - Risk Perception- and company size is presented.

Table 10C on the other hand, illustrates the result of a similar analysis to examine the relationship between Risk Perception and the value of contracts on which responding companies based their answers.

See Figure 3 for the illustration of Risk Perception Curve of the responding companies.

Figure 3

Risk Perception Curve of the Responding Companies



Degree of Risk Perception

* The Risk Perception Curve is Non-linear.

Table 10C
Relationship between Perceived Risk
and the Value of Contract

	DF	F value	Significance of F
Main Effects	3	2.822	0.043
Contract Value	3	2.822	** 0.043
Explained	3	2.822	** 0.043
Number of Cases Processed: 91			
<u>Multiple Classification Analysis</u>			
Independent Variable & category: Contract Value (£000)	N	Unadjusted DEV'N (ETA)	Adjusted for Independents DEV'N (BETA)
1. 10 thru 1000	16	0.27	0.27
2. 1001 thru 1500	27	- 0.02	- 0.02
3. 1501 thru 2500	22	- 0.17	- 0.17
4. 2501 thru 40,000	26	- 0.01	- 0.01

** In spite of its significance (95%) further evidence in the Multiple Classification Analysis suggests that there is no meaningful relationship between Perceived Risk and the Value of the Contracts on which respondents based their answers. Therefore, the relationship between Perceived Risk and the Value of Contracts will be determined solely on the basis of the results presented in Table 10E.

✕ Table 10D below presents results of Cross-tabulation to determine the relationship between the dependent variable - Perceived Risk - and each of the independent variables shown in the Table.

Table 10D
Relationship between Risk Perception and each of
the independent variables shown in the Table

Perceived Risk as a function of:-	Kendall's Tau B	Significance	N. of Cases	Remarks
Type of contract	0.133	0.090	55	*
Customer's knowledge of his needs	-0.205	0.023	78	**
<u>Respondent's Managerial Positions:-</u>				
Managing Directors	-0.148	0.078	31	*
Directors	0.043	0.338	34	NS.
Commercial/Marketing Managers	0.110	0.146	10	NS.
Chief Estimators	0.015	0.441	8	NS.
Project/Contract Managers	0.044	0.333	4	NS.
Executives	0.045	0.333	4	NS.
Operations/Contract managers	0.108	0.147	2	NS.
Chief Engineer	-0.141	0.087	1	*
<u>Contract Clauses:-</u>				
Liquidated damages clause	0.146	0.081	84	*
Provision for alteration/addition	0.204	0.024	91	**
Performance Bond	0.084	0.209	49	NS.
Price fluctuation clause	0.071	0.246	68	NS.
Retention Clause	0.085	0.207	82	NS.

** To be read: The relationship is significant at 95% level of confidence.

* To be read: The relationship is significant at 90% level of confidence.

NS. To be read: There is no significant relationship.

The results in Table 10B show that the size of the company, defined in terms of its financial strength or annual sales turnover, had a considerable influence on its perception of risk in contract decision making process.

This inverse relationship between Risk Perception by construction companies and the sizes of the companies was also found to be highly significant at ninety five percent (95%) level of confidence.

The result is also consistent with some of the findings of earlier research in Organisational Buying Behaviour, even though the present finding is concerned with the "Selling Behaviour" of construction companies.

However, it must be observed that the relationship between risk perception and the sizes of the responding companies is not linear. For example, Figure 3 illustrates the risk perception curve of the responding companies.

This finding raises some questions about the assumed linear relationship between perception of risk and the size of organisation, which earlier research has for so long, and so readily accepted.

Since this issue will be raised again in the final Chapter, this researcher's suggestions about it are deferred till then.

As Table 10C demonstrates, the result of the analysis to determine the relationship between Risk Perception and Contract Value, has proved inconclusive.

This arose from the fact that, although the relationship was significant at ninety five percent (95%) level of confidence, the values of Multiple Classification Analysis were negative.

This makes any practical interpretation of the result rather meaningless.

Therefore, we have to rely on the results in Table 10E below to make some deductions about the relationship between the value of a contract, and how construction companies perceived it in terms of risk.

Table 10E
Relationship between Risk Perception and
Contract Value

Contract Value (in £000)	Perceived it as risk	Did not perceive it as risk	N. of cases	% total
Under 1000	6 (37.5)	10 (62.5)	16	100.0
1000-1500	19 ** (67.9)	9 (32.1)	28	100.0
1501-2500	18 *** (81.8)	4 (18.2)	22	100.0
Over 2500	16 * (64.0)	9 (36.0)	25	100.0

** To be read: 67.9% of Contract Values from £1m to £1.5m were perceived as risk by construction companies.

*** To be read: 81.8% of Contract Values from over £1.5m to £2.5m were perceived as risk by construction companies.

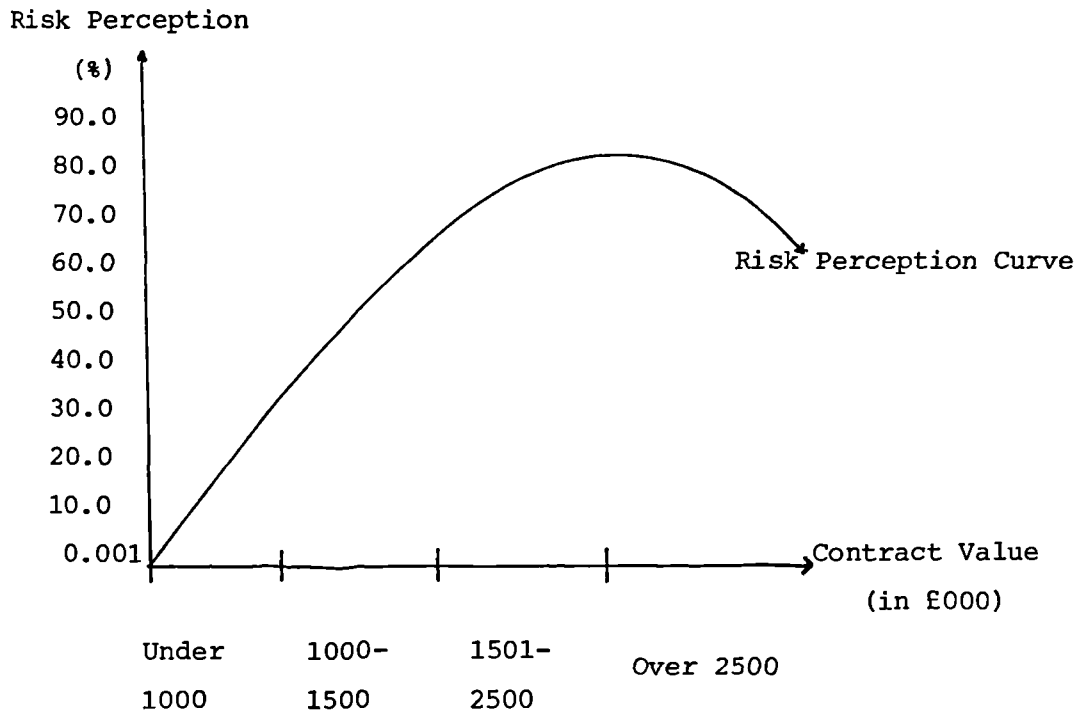
* To be read: 64.0% of Contract Values over £2.5m were perceived as risk by construction companies.

It is obvious from the Table 10E that the value of contract had some influence on the perception of risk by construction companies.

However, while the results have shown a positive relationship between perception of risk and the value of contract, that relationship does not seem to be linear - (moving from 67.9% to 81.8% and then dropping off to 64%, irrespective of the increase in the Value of Contract) throughout the risk perception curve.

This is illustrated in Figure 4 below.

Figure 4
Risk Perception Curve of Construction Companies in
respect of Contract Value



Since the available information is inadequate to offer any further and meaningful explanation about the behaviour of the risk perception curve, the issue is deferred until the final Chapter of the study.

Apart from these two factors - company size, and contract value, results of Cross-tabulation analysis, presented in Table 10D, show that, fixed price/lump sum contracts, and, especially the customer's knowledge of his needs, had considerable positive influence on perception of risk by construction companies.

This relationship was found to be significant at ninety percent (90%) and ninety five percent (95%) level of confidence respectively.

The results in the Table also show that, apart from the Managing Directors who, as chief executives of their companies, had inverse relationship between their managerial position and perception of risk, which was significant at ninety percent (90%) level of confidence, there was no meaningful relationship which could be attributed to managerial positions of the respondents and their perception of risk.

Therefore, in general, managerial positions of the respondents in the construction companies do not seem to have any appreciable influence on the companies' perception of risk when they tendered for and accepted construction contracts.

Table 10D also shows that perception of risk by construction companies depended on how the contracts were worded in terms of the types of clause included in the contracts.

In this regard, the inclusion of a liquidated damages clause, and the possibility of contract variations, had considerable influence on the companies' perception of risk, being significant at ninety percent (90%), and ninety five percent (95%) level of confidence or better respectively.

Thus, while the results in Table 10A have confirmed that construction companies perceived risk when they tendered for an accepted construction contracts, the results in Table 10B, 10C and 10D, have shown that, that perception of risk depended on the factors which have been analysed and discussed above.

Types of Risks Perceived

The previous question which provided the data for Table 10A, was intended to provide evidence for the support or rejection of the first part of the first hypothesis.

However, after that has been established, we would like to know the types of risks which the sample companies perceived in their contract decision making process.

It is obvious that since most construction contracts tend to be unique in one way or another, the risks perceived by the companies in any particular contract will also vary according to the nature of the contract.

Therefore, to find out what they actually perceived as risk, the sample companies were asked to state the types of risks they perceived.

Their answers are presented below in Table 11A which illustrates some of the risks construction companies perceived. Some of the answers which have not been included in any of the groups in Table 11A are presented separately after Table 12.

As it can be seen in Table 11A, the possibility of not being able to complete the project on time, as well as the likelihood of not making any profit on the contract, were perceived as risks by most of the responding companies (67.2% and 60.3%, respectively).

Table 11A

Types of Risks perceived by Construction Companies

Types of Risks	Perceived it as risk	Did not perceive it as risk	N	Base %
Completion date	39 ** (67.2)	19 (32.8)	58	100.0
Labour Problem	11 (19.0)	47 (81.0)	58	100.0
No profit	35 * (60.3)	23 (39.3)	58	100.0
Weather Conditions	23 (39.7)	35 (60.3)	58	100.0

** To be read: 67.2% of the responding companies considered the possibility of not meeting the 'completion date' as one of the main risks they perceived in their contract decision making process.

* To be read: 60.3% of the responding companies perceived as risk the possibility of making "No Profit" on the contract.

This is not surprising because, in practice, the two sources of risks are related. The relationship stems from the fact that failure on the part of the firm to complete the project on time may result in such a company paying (liquidated?) damages which may drastically reduce the company's chances of making any profit on the project.

The risk implication of this relationship is increased by the fact that most construction contracts contain a liquidated damages clause as shown in Tables 11B, 11C, 11D and 11E.

Table 11B presents results from responding companies, while Tables 11C, 11D and 11E present results from construction customers.

Table 11B
Clauses included in the Contracts as given by
Construction Companies

Types of Clauses	It was included	It was not included	N	Base %
Liquidated damages clause	84 *(90.3)	9 (9.7)	93	100.0
Performance Bond	49 (52.7)	44 (47.3)	93	100.0
Price Fluctuations Clause	68 (73.1)	25 (26.9)	93	100.0
Addition/Alterations Clause	91 (97.8)	2 (2.2)	93	100.0
Retention Clause	82 (88.2)	11 (11.8)	93	100.0

* To be read: 90.3% of contracts on which responding companies based their answers contained a liquidated damages clause.

Table 11C
Clauses included in the contracts as given by
Construction Customers

Types of Clauses	It was included	It was not included	N	Base %
Liquidated damages clause	68 *(81.9)	15 (18.1)	83	100.0
Performance Bond	55 (66.3)	28 (33.7)	83	100.0
Retention Clause	81 (97.6)	2 (2.4)	83	100.0
Price Fluctuations Clause	49 (59.0)	34 (41.0)	83	100.0
Addition/Alterations Clause	54 (65.1)	29 (34.9)	83	100.0

* To be read: 81.9% of contracts on which the responding customers based their answers contained a liquidated damages clause.

Table 11D
Clause Application by Customers

Variable	Applied some of the clauses	Did not apply any of the clauses	N	Base %
Clause Application	58 * (72.5)	22 (27.5)	80	100.0

* To be read: 72.5% of the responding customers applied some of the clauses included in the contracts.

Table 11E
Types of Clauses Construction Customers Applied

Types of Clauses	It was included	It was not included	N	Base %
Liquidated damages clause	13 *(22.0)	46 (78.0)	59	100.0
Retention Clause	49 (79.7)	12 (29.3)	59	100.0
Variation	31 (52.5)	28 (47.5)	59	100.0
Performance Bond	28 (47.5)	31 (52.5)	59	100.0

* To be read: 22% of the responding customers applied liquidated damages clause included in their contracts.

The results in Tables 11B and 11C, show that a liquidated damages clause was included in most of the contracts.

It could also be recalled that the influence of inclusion of a liquidated damages clause in a contract on company's perception of risk on that particular contract was found to be significant at ninety percent (90%) level of confidence.

It could be observed that it is not just the inclusion of the clause, but the possibility of its application that may constitute risk to the company.

However, this observation is weakened by the results in Table 11D, where most of the responding customers (72.5%) indicated that they applied, or were prepared to apply any of the clauses included in the contracts.

Therefore, it seems that, although only twenty two percent (22%, Table 11E) of the responding customers actually applied the liquidated damages clause, the inclusion of the clause in a contract could, at best, serve as an intimidation of the company, and, at worst, lead to unpleasant financial consequences for the company concerned. Obviously, this would reduce the company's profit on the contract.

Hence, the relationship between the inclusion of a liquidated damages clause in a contract, and the possibility of making no profit on the contract due to failure to meet the completion date.

Risk Management Strategies employed

It could be recalled that the hypothesis (H_1 .) we are discussing has two parts: the first part deals with the perception of risk by construction companies, while the second part is concerned with what the companies do to manage the perceived risks.

So far, what we have analysed and discussed refers to the first part of the hypothesis. Therefore, in order to provide

information for the second part of the hypothesis, we requested the sample companies to state the strategies which they employed to manage the perceived risks.

The answers which responding companies provided are presented below in Table 12A, which illustrates the strategies which the companies employed to manage the perceived risks.

The answers were diverse. However, most of them have been classified into the groups shown in Table 12A. Some of the answers which either do not fall into any of the groups in the Table, or have not been included, are described separately after Table 12A.

Table 12A
Risk Management Strategies applied by Companies

Risk Management Strategies	Applied the strategy	Did not apply the strategy	N	Base %
Careful Planning	42 *(71.2)	17 (28.8)	59	100.0
Provision for risk	21 (33.6)	38 (64.4)	59	100.0
Labour Management	21 (35.6)	38 (64.4)	59	100.0
Sub-Contractor Selection	12 (20.3)	47 (79.9)	59	100.0

* To be read: 71.2% of the responding companies applied "Careful Planning" to manage the risks they perceived.

The results in Table 12A show that 'Careful Planning' was used by most of the responding companies as a risk management strategy.

However, some of the companies (35.6%) managed the risk they perceived by providing for it in the contract price, or the wording of the contract, and by managing their labour effectively (35.6%).

The finding on "careful planning" as a risk management strategy is significant in the sense that, it is not only consistent with the views expressed by Ansoff⁽⁸⁾, Hussey⁽⁹⁾ and Agenti⁽¹⁰⁾, but also supports the views this researcher expressed in Chapter Four.

It will be recalled that, in that Chapter, we stressed the need for construction companies to plan their activities carefully before embarking on a decision to tender for and accept a construction contract.

The other answers which were not included in any of the groups in Table 12A above, are presented below.

It may be recalled that ($H_{1.2}$) the second part of the first hypothesis (H_1) suggests that construction companies take appropriate risk management strategies to manage what they perceive as risks.

The review in Chapter Four showed that the relatively long time it takes to produce most construction products, defined as completed projects, means that, by nature, most construction contracts have a futuristic factor. This creates uncertainty which in itself is a source of risk.

The needs of the buyer, for example, may change before the product is completed. Given that most construction products are "customised", or made for a particular client for a particular purpose, the seller - construction firm - may not be able to find a

Type of Risk Perceived	Risk Management Strategy Companies applied
The possibility of not finding a "good team"	<p>A number of companies (four) explained that complexity of most construction projects requires great coordination and team work between the contractor and the client or his representative.</p> <p>However, "as in all businesses, there are good teams and bad teams". Therefore, the companies endeavour to assess the possibility of finding "a good team before applying for tendering opportunity. Then, in event of the tender being successful, the potential problems are discussed openly during joint pre-start meeting".</p>
The possibility of submitting too low a bid.	Double check key rates and preliminaries. (Two companies).
Weather condition.	<p>This was given by two companies: for marine contracts, weather condition was given as the main risk.</p> <p>However, one of the companies simply stated that "PRAYER" was its risk management strategy.</p> <p>For building contracts, the companies stated that they managed the risk of bad weather condition by "increasing fabrication of work, as much as possible in shops rather than on site".</p>
Client's financial instability.	"Arrange direct transfer from client's bank". (Two companies).
Political and consequently, economic, and financial; currency exchange rate.	"Qualify the bid to avoid some of the unknown factors. Quote fixed exchange rates to eliminate financial risk". (One company).
Erosion of profit margins due to "fixed price" and "tight contracts", in an inflationary environment	"Procure sensitive materials early in the contract, and pay strict attention to cost control. Programme accurately and monitor progress carefully and regularly". (Six companies).
Possibility of not meeting completion date.	<p>* "Work overtime.</p> <p>* Introduce incentive scheme if level of productivity is not satisfactory.</p> <p>Renegotiate delivery date if the client makes changes in the contract". (Five companies).</p>

* These risk management strategies are obviously part of effective labour management. Therefore, they should have been included in "effective labour management" as risk management strategy, given by some thirty-five percent (35.6%) of the responding companies in Table 12.

However, they are presented separately because the companies themselves gave them separately.

ready buyer in time. Obviously, this would lead to a considerable loss on the part of the construction firm.

To prevent this from happening, most construction products are legally sold before they are made. In other words, the futuristic factor makes it necessary to put in writing at the time of contracting, all the conditions which, not only establish binding obligations but also form the basis for the performance of the contract, and resolution of disputes which may arise between the parties involved in the contract.

In this regard therefore, a written contract and the wording of that contract, form part of the "appropriate risk management strategies" which construction companies employ to manage what they perceive as risks.

To test the validity of this conclusion, we asked the sample companies to state whether the contracts on which they based their answers, were verbal contracts, based on mutual trust, or they were written contracts. Then, they were requested to give reasons why they preferred to choose or accept a written or verbal contract.

The responding companies' answers are presented in Table 12B and 12C, which illustrate the form of the contracts on which companies based their answers, and the reasons for preferring a written contract, respectively.

Results from the Tables (12B and 12C) show that there is strong evidence to support the view that construction companies perceived a written contract as a risk management strategy.

Apart from the fact that all the contracts on which the responding companies based their answers were written contracts, most of the responding companies (87%) said they chose a written

Table 12B
Form of Contract

Variable	The Contract was written	N	Base %
Written contract	94 *(100.0)	94	100.0

* To be read: 100.0% of the contracts on which responding companies based their answers were written contracts.

Table 12C
Reasons for Written Contracts

Reasons	Written because of	Written not because of	N	Base %
Conflict Resolution	80 *(87.0)	12 (13.0)	92	100.0
Company Policy	33 (35.9)	59 (64.1)	92	100.0
Contract Requirements	88 (95.7)	4 (4.3)	92	100.0

* To be read: 87% of responding companies considered a written contract as a strategy for managing any dispute which may arise in the contract.

contract because it provided the best means of solving any conflict that may arise between them and the customers.

It is also important to note that most of the responding companies (95.7%) said they had no choice since it was the requirement of the contract that it must be written.

This seems to suggest that the customer too, considered a written contract as a means of protecting himself against potential risks.

But what are the chances that the customer's needs may change before the project is completed.

Tables 13A, 13B, 13C, 13D and 13E, present the responding companies' answers to questions which asked them to state whether there were variations in the contracts before their completion, who initiated the variations, the reasons for the variations, and the effects of these variations respectively.

Table 13A
Contract Variations

Variable	There was variation	There was no variation	N	Base %
Variation	80 *(86.0)	13 (14.0)	93	100.0

* To be read: 86% of the contracts were changed in one way or another before they were completed.

Table 13B
Variation Initiators

Initiators	Initiated by	
The customer	80	*(98.8)
The Company	1	(1.2)
	81	(100.0)

* To be Read: 98.8% of the changes in the contracts were made or initiated by customers.

Table 13C
Reasons for Variations as given by Responding Companies

Reasons for Contract Variations	It was because	It was not because	N	Base %
Faulty design/specification	25 (32.1)	53 (67.9)	78	100.0
To improve product performance	27 (34.6)	51 (65.4)	78	100.0
To reduce production cost	10 (12.8)	68 (87.2)	78	100.0
Customer's needs changed	58*(74.4)	20 (25.6)	78	100.0
The Coy. could not produce	3 (3.8)	75 (96.2)	78	100.0
Bad physical condition	3 (3.8)	75 (96.2)	78	100.0

* To be read: 74.4% of all the responding companies said contract variations were due to changes in the needs of the customer.

Table 13D
Effect of Variations on Company Performance

Variable	Performance affected	Performance not Affected	N	Base %
Effect on Performance	14 *(17.1)	68 ** (82.9)	82	100.0

* To be read: The performance of 17.1% of the responding companies was affected by variations.

** To be read: The performance of 82.9% of the responding companies was not affected by variations.

Table 13E
Effect of Variations on Contracts

Effects	Contract affected	Contract not affected	N	Base %
Production Reschedule	14** (100.0)	- -	14	100.0
Late Delivery	9 * (64.3)	5 (35.7)	14	100.0
Production Cost increases	5 (35.7)	9 (64.3)	14	100.0

** To be read: Work on 14 of the contracts had to be rescheduled as a result of variations in the contracts.

* To be read: 9 of the contracts were not completed on time as a result of variations in the contracts.

Similar questions were also put to construction customers. Their answers are presented below in Tables 14A, 14B, 14C and 14D, respectively.

Table 14A
Contract Variations

Types of Variations	There were Variations	There were no Variations	N	Base %
Additions	50 *(63.3)	29 (36.7)	79	100.0
Alterations	58 **(73.4)	21 (26.6)	79	100.0

* To be read: 63.3% of the responding customers said the variations were due to additions to the initial contract/specifications.

** To be read: 73.4% of the respondents cited alterations of the original contract/specifications, as the factor causing variations in the initial contract.

Table 14B
Variation initiators

Initiators	Initiated by
The customer	61 *(92.4)
The company	5 (7.6)
	66 (100.0)

* To be read: 92.4% of the variations were initiated by the customers.

Table 14C
Reasons for Variations in initial contracts

Reasons for variations	said 'Yes'	said 'No'	N	Base %
Faulty design/specification	11 (16.9)	54 (83.1)	65	100.0
To improve Product Performance	20 (30.8)	45 (69.2)	65	100.0
To reduce Production Cost	8 (12.3)	57 (87.7)	65	100.0
The Coy. could not produce	6 (9.2)	59 (90.8)	65	100.0
The customer's needs changed	45 * (69.2)	20 (30.8)	65	100.0
Site was unsuitable	5 (7.7)	60 (92.3)	65	100.0

* To be read: 69.2% of the respondents cited changes in the needs of the customers as a factor causing variations in the initial contract.

Table 14D
Effect of Contract Variations on completion date

Effect	Completion date affected	Completion Date not affected	N	Base %
Delayed completion	17 * (26.5)	48 ** (73.5)	65	100.0

* To be read: 26.5% of the contracts were not completed on time as a result of variations in the contracts.

** To be read: 73.5% of the contracts were completed on time, even though there were variations in them.

The evidence provided by the responding companies shows that there were changes in most of the contracts (86.0%) before they were completed, and that most of those changes were caused by the customers.

Results in Table 13B for example, show that more than ninety eight percent (98.8%) of all the variations in the contracts were initiated by the customers.

This is confirmed by customers themselves through the result presented in Table 14B, where more than ninety two percent (92.4%) of all the variations were initiated by customers.

In Tables 13C and 14C, the reasons for the variations are presented. The results in these two Tables show that "changes in the needs of the customer" were responsible for more than seventy four percent (74.4%) and sixty nine percent (69.2%) respectively, of all the variations in the contracts.

Therefore, it seems that, although Table 13D shows that only fourteen (14) companies were adversely affected by contract variations, the overall evidence from Tables 13A, 13B, 13C, 14A, 14B and 14C, is enough to justify construction companies' perception of a written and legally binding contract as a risk management strategy.

However, the extent to which a written contract can be a risk management strategy for a construction company may depend also on the wording of the contract, especially in terms of the types of clauses included in the contract.

Tables 14E and 14F illustrate the types of clauses which were included in the wording of the contracts. The data of the Tables is based on the responding companies and customers' answers to a question which requested them to state the clauses which were included in the wording of the contracts on which they based their answers.

The results presented in these Tables are the same as those presented in Tables 11B and 11C respectively. However, they are presented here again for easy reference.

Table 14E
Clauses included in the contracts as given by
Construction Companies

Types of Clauses	Included	Not included	N	Base
Liquidated damages Clause	84 (90.3)	9 (9.7)	93	100.0
Performance Bond	49 (52.7)	44 (47.3)	93	100.0
Price fluctuation Clause	68 *(73.1)	25 (26.9)	93	100.0
Addition/Alteration Clause	91 **(97.8)	2 (2.2)	93	100.0
Retention Clause	82 (88.2)	11 (11.8)	93	100.0

* To be read: 73.1% of the contracts on which construction companies based their answers contained price fluctuation clause.

** To be read: 97.8% of the contracts on which the responding companies based their answers contained conditions under which there could be additions to, or alterations in the initial contract/specifications.

The results presented in Table 14E and 14F show that most of the contracts on which the respondents based their answers, contained price fluctuation clause and conditions under which there could be additions to, or alterations in the contracts.

These clauses are intended to protect the construction company against risks arising from changes in price and/or the needs of the customer.

We have seen already that the possibility of variations in terms of additions to, or alterations in the original contract before its completion, had a positive influence on companies' perception of risk on the contract.

Table 14F
Clauses included in the contracts as given by
Construction Customers

Types of Clauses	Included		Not included		N	Base
Liquidated damages Clause	68	(81.9)	15	(18.1)	83	100.0
Performance Bond	55	(66.3)	28	(33.7)	83	100.0
Retention Clause	81	(97.6)	2	(2.4)	83	100.0
Price fluctuation Clause	49	*(59.0)	34	(41.0)	83	100.0
Addition/Alteration Clause	54	** (65.1)	29	(34.9)	83	100.0

* To be read: 59% of the contracts on which customers based their answers contained price fluctuation clause.

** To be read: 65.1% of the contracts on which the responding customers based their answers contained conditions under which there could be additions to, or alterations in the contracts.

How then can the inclusion of a provision under which there could be additions to, or alterations in the original contract become both a risk factor, and a risk management strategy for a construction company?

Firstly, we have seen that most of the contracts (86%, see Table 13A) are changed in one way or another. These changes or variations could cause some changes in production schedules, materials requirement, and other problems. At worst, they could render the company incapable of executing the contract under the 'new' requirements, though this is not common.

It is in this sense that construction companies see the possibility of variations in a contract as a possible source of risk.

On the other hand, the fact that the wording of a contract contains conditions under which additions to, or changes in the contract must be treated, protects the construction company against changes in contracts which might increase its cost without a corresponding financial compensation from the customer.

In this regard therefore, inclusion in the contract of conditions under which any variations must be subject to, forms part of construction companies' risk management strategy.

Construction companies also regard inclusion of a price fluctuation clause in contracts as part of their risk management strategy (see Table 14E). Its inclusion protects the company against risks arising from changes in prices of items that may increase the overall cost of production after the contract has been signed in the sense that the customer may compensate the company for the changes in the prices.

This explains why "fixed price" contracts had more positive influence than those with price fluctuation clauses, on perception of risk by construction companies.

It seems therefore, that the analyses of the various results have shown that construction companies used appropriately, not just a written contract, but also the wording of the contract as a risk management strategy against perceived risks.

Conclusion

The analyses of the results show that the responding companies perceived risk in their contract decision making process.

However, the perception of risk was found to be considerably influenced by a number of factors, such as

the size of the company, measured by annual sales turnover; the value of, and the nature of the contract, the customer's knowledge of his needs, and the wording of the contract.

The nature of the risks construction companies perceived varied widely. The result was that the appropriate strategies which they adopted to manage the perceived risks also varied.

These findings have supported the hypothesis H_1 , which was that construction companies perceive risks when they tender for and accept construction contract. Accordingly, they take appropriate risk management strategies to manage the perceived risks.

Section Two

Introduction

The main objective of this section is to analyse the relevant results from the survey in order to be able to draw some conclusions about the following hypotheses:-

- H₂. That a traditional marketing approach is not effective in the competitive bidding sector of the construction industry.
- H₁. That in most construction companies, the marketing department is not regarded as an important part of the "Selling Decision Centre" of the company.

Hypothesis H₂. will be examined in the context of the extent to which construction companies applied marketing methods to achieve particular objectives, and how effective or successful they were in achieving the desired objectives.

In hypothesis H_{2.1}., what is examined is the extent to which the Marketing Department is involved in the final decision to prepare and submit bids for the contracts on which the respondents based their answers.

Effects of marketing approach by construction companies

Tables 15A and 15B illustrate marketing effort by responding companies to "precipitate" the buyer's decision concerning award of contracts, and the factors they used to influence customers' decisions, respectively.

Table 15C on the other hand, shows whether construction companies made any effort at all to that end.

The data of these Tables (15A, 15B and 15C) is based on the responding companies' answers to the following questions respectively.

Q8(a) Do you think your company influenced the customer to award the contract earlier than he would have done if you had not approached them?

If your answer to the above question is 'YES', how was this achieved?

If your answer to Q8(a) above is 'NO', did your company make any attempt to convince the customer to award the contract earlier than he had wanted?

Table 15A

Marketing effort to precipitate contract award

Variable	Marketing effort made	Marketing effort not made	N	Base %
Marketing effort	8 (8.8)	83 *(91.2)	91	100.0

* To be read: 91.2% of customers' decisions to award contracts were not 'precipitated' by the responding companies' marketing effort.

Table 15B

Factors which companies used to influence customer decision

Nature of factors used	Used	Not Used	N	Base %
Economic advantage	5 (62.5)	3 (37.5)	8	100.0
Coy. had know-how	5 (62.5)	3 (37.5)	8	100.0
Time-gap consideration	4 (50.0)	4 (50.0)	8	100.0

Table 15C
Effort to convince customer

Variable	Made Effort	Made no Effort	N	Base %
	20 (23.5)	65 * (76.5)	85	100.0

* To be read: 76.5% of the responding companies did not make any marketing effort to influence customer's decision.

In order to obtain a balanced view, construction customers were also asked to state whether they were persuaded by any construction companies to award the contracts to them, and if so, whether their final decision to award the contracts were influenced in any way by persuasive marketing techniques of any construction companies.

Specifically, they were asked the following questions:

Before tenders were invited, did any company persuade you, in any way, to award the contract to it?

Did any approach from a company before the award of the contract have any positive impact on your final decision?

The results from the above questions are presented in Tables 16A and 16B respectively.

The results presented in the Tables show that there is very little evidence to suggest that effective marketing effort was applied by construction companies to precipitate purchase of construction contracts.

As the results in Tables 16A and 16B show, even where some marketing effort was made, it had no impact at all on the

customers, in terms of when they wanted or decided to award the contracts on which answers were based.

Table 16A
Persuasion of customers by construction companies

Variable	Persuaded	Not Persuaded	N	Base
Persuaded customers	1 (1.2)	83 * (98.8)	84	100.0

* To be read: 98.8% of the responding customers were not persuaded in any way by any construction company, to award the contract to it, before tenders were invited.

Table 16B
Marketing impact on customer's decision

Variable	Had no impact	N	Base
Seller's marketing impact	82 * (100.0)	82	100.0

* To be read: 100.0% of the responding customers said any marketing effort by construction companies had no impact at all on their decision to award contracts.

However, this seems to contrast sharply with what construction companies themselves said they did. For example, see the evidence presented in Tables 15A, 15B, as well as 15C.

This apparent difference may be explained in terms of the nature of the contract, and the tendency of construction customers to tell the official version of behaviour of parties involved in a contract, rather than what may have actually happened.

This tendency is based on fear of being accused of corruption or partiality or both.

The results of application of marketing techniques by construction companies, and the degree of application itself, to influence customer's purchasing decision, are obviously, not encouraging. But then, is the situation the same in terms of companies applying marketing methods to influence the results of bids after they have been submitted?

Tables 17A and 17B illustrate bid follow-up effort by responding companies, and the nature of the marketing effort applied, respectively.

The data of the Tables is based on the responding companies' answers to the following questions.

After the bid had been submitted, did your company make any other effort to influence the result of the bid in its favour?

If 'YES' please explain briefly the nature of the effort.

Table 17A

Bid follow-up marketing effort to influence result

Variable	Follow-up effort made	No follow-up effort made	Don't know	N	Base %
Bid follow-up	25 * (26.6)	66 ** (70.2)	3 (3.2)	94	100.0

** To be read: 70.2% of the responding companies did not make any follow-up marketing effort after the bids had been submitted.

* To be read: 26.6% of the responding companies made some follow-up marketing effort to influence the results of bids.

The results presented in Table 17A show that most construction companies (70.2%) did not apply marketing methods to influence the outcome of their bids.

The results in Table 17B, on the other hand, show that, although telephone calls were used, most of the responding companies (26) used personal visits as their marketing effort to influence the results of their bids.

However, the significance of these contacts is lessened by the fact that most of them may have taken place during the negotiation part of the contract, since the result in Table 17B is based mostly on 'two-stage' contracts.

Table 17B
The nature of the marketing effort used

Effort	Used	Did not use	N	Base %
Personal visits	26 * (96.3)	1 (3.7)	27	100.0
Telephone Calls	17 * (63.0)	10 (37.0)	27	100.0

* To be read: 26 and 17 companies used personal visits and telephone calls respectively as their bid follow-up marketing effort to influence the results of bids they had submitted.

(However, it must be noted that both these results and the 26.6% in Table 17A, are based on contracts that were won through both competitive bidding, and negotiation.)

Therefore, in general, most construction companies did not apply marketing methods to influence the buying decisions of customers after the bids had been submitted.

Concluding remark

The analysis of the results has shown that most construction companies made very little or no marketing effort to influence customer's decisions before tenders were invited for contracts.

The results have also shown that even where some form of marketing approach was made, before or after the bids had been submitted, they had no impact at all on the final decision of the customers.

These findings have provided some support for the hypothesis H_2 , namely, that a traditional marketing approach is not effective in the competitive sector of the construction industry.

How construction companies regarded their marketing departments

Hypothesis H_{2.1} is concerned primarily with the nature and degree of involvement of a construction company's Marketing Department in a construction contract.

The (apparent?) lack of adequate and effective application of Marketing Methods to influence the customer's decision may be due, not only to the nature of the construction industry, but also to how construction companies and customers themselves regarded and defined the role of their Marketing Departments.

Table 18A illustrates how construction companies got their information about contracts for which they tendered. Tables 18B and 18C on the other hand, illustrate how construction companies and customers regarded their marketing departments in terms of the composition of the "Selling Decision Centre", and the "Buying Decision Centre" respectively.

The data of Table 18B is based on construction companies' answers to a question which required them to rank-order, in terms of importance, the people who helped determine the bid price of the contracts on which the respondents based their answers.

Table 18C on the other hand, is based on the answers which construction customers gave to a question which asked them to rank-order, in terms of importance, the extent to which people, in various managerial positions in the customer organisation, helped in the evaluation and selection of bids for the contracts on which customers based their answers.

In each case, the respondents were given a seven-point scale (1-7) on which to rank-order the persons, whose managerial positions were also provided.

Table 18A

How construction companies learn about contracts

Sources	Through
Market Research Unit	16 . * (17.4)
Sales force	40 (43.5)
Customer's advertisement	9 (9.8)
Direct contact by customer	27 (29.3)
	92 (100.0)

* To be read: 60.9% of the responding companies' information about contracts came through the Marketing Department.

Table 18B

Construction companies' contract 'Selling Decision Centre'

Persons (Depts.)	Most Important (1)	Important (2-3)	Less Important (4)	Least Important (5-7)	N	Base %
Qs/Estimator	56 (64.4)	30 (34.5)	1 (1.1)	- -	87	100.0
The Civil Engineer	2 (7.1)	20 (71.5)	6 (21.4)	- -	28	100.0
The General Manager	6 (13.6)	37 (84.1)	1 (2.3)	- -	44	100.0
The Executive Director	31 (38.7)	46 (57.6)	2 (2.5)	1 (1.2)	80	100.0
The Marketing Manager	- -	15* (62.5)	4 (16.7)	5 (20.8)	24	100.0
The Accountant	- -	2 (15.4)	3 (23.0)	8 (61.6)	13	100.0

* To be read: Only 15 of the responding companies considered the Marketing Manager as "important" in their 'Selling Decision Centre'.

It may be observed that the number of companies that responded to the question which provided the results in Table 18B as the question related to the various managerial positions, varied

widely. Therefore, it seems reasonable to offer an explanation for the variation.

The total number of companies that answered the question as it related to each of the managerial positions is given in the 'N' column of the Table. As the Table shows, this varies widely from 87 to 13 companies.

One possible explanation for the variation is that, it reflects how the responding companies perceived the relevance and the importance of the various managerial positions in terms of the companies' selling decision making process.

Thus, while eighty-seven (87) and eighty (80) of the companies answered the question as it related to the Qs/Estimator, and the Executive Director, respectively, only thirteen (13) and twenty four (24) companies bothered to answer the question as it related to the Accountant, and the Marketing Manager respectively.

Table 18C

Construction Customers' Contract Buying Decision Centre

Persons (Depts.)	Most Important (1)	Important (2-3)	Less Important (4)	Least Important (5-7)	N	Base %
The Chief Executive	4 (14.3)	18 (64.3)	6 (21.4)	- -	28	100.0
Qs/Estimator	57 (71.2)	23 (28.7)	- -	- -	80	100.0
The Architect	23 (32.4)	46 (64.8)	2 (2.8)	- -	71	100.0
The Consultant	1 (6.7)	12 (79.9)	1 (6.7)	1 (6.7)	15	100.0
The Accountant	1 (6.7)	13 (76.4)	- -	3 (17.7)	17	100.0
The Marketing Manager	- -	5 *(50.0)	2 (20.0)	3 (30.0)	10	100.0

* To be read: Only 5 of the responding customers considered the Marketing Manager as 'important' in their "Buying Decision Centre".

The explanation which was given for the variation in the number of responding companies ('N') in Table 18B, is also applicable here.

The 'N' column in the Table (18C) shows the number of customers that answered the question as it related to each of the managerial positions included in the question.

As can be seen from the Table, this varies widely because not all of them answered the question as it related to the managerial positions included in the question.

Thus, while eighty (80) and seventy one (71) customers answered the question as it related to the Qs/Estimator, and the Architect, respectively, only ten (10) and fifteen (15) customers answered the question as it related to the Marketing Manager, and the customer's consultant respectively.

This seems to suggest that some of the managerial positions included in the question were either irrelevant to the customers' situations, or the persons in those positions were not important in the organisations' buying decision making, or both.

The results presented in Table 18A have shown that most of the company's information about contracts (60.9%) came through the Marketing Department.

Another important aspect of the result is that it shows that a reasonable amount of information (29.3%) about contracts, came to companies through direct contact by the customer.

This points toward the need for construction companies to endeavour to get their names on the customer's list of pre-qualified companies.

The results in both Tables 18B and 18C on the other hand, show that, unlike the Estimator, the Executive Director, or the Architect, the Marketing Manager, representing the Marketing Department, was generally not considered as a very important contributor in the final decisions concerning the submission or acceptance of bids.

This contrasts sharply with the results in Table 18A where the contribution of the Marketing Department is obviously dominant.

Therefore, it seems that, although there may be some exceptions, the function of Marketing Departments in construction companies seems to be limited to searching the market to find where new contracts were available so that the company could tender or prepare to tender for them if it so desired.

Thus, it seems that, beyond this, most Marketing Departments in both the construction companies and customer organisations, were not involved extensively in the subsequent decisions which may lead to the winning/awarding of contracts in the competitive bidding sector of the construction industry.

Concluding Remark

The analyses of the results have shown that, the Marketing Department in a construction company was actively involved in the search for information about new contracts for which the company could tender.

However, the results have also shown that, the Marketing Department was not involved in the final contract decisions to be regarded as an important part of the "Selling Decision Centre" of the construction company.

These findings have provided support for the hypothesis $H_{2.1}$ which was that in most construction companies, the Marketing Department was not regarded as an important part of the 'Selling Decision Centre' of the company.

Section Three

Introduction

The main objective of this section is to analyse the relevant results from the survey in order to be able to draw some valid conclusions about a hypothesis which is concerned with the perception and management of risks by construction companies along the critical phases through which a contract decision process evolves.

The hypothesis is stated as:-

H₃. That in contract decision making, an analysis of relevant 'focal points' is essential for effective management of risks in the contract.

It may be recalled that, in the review in Chapter Five, it was demonstrated that the process which eventually leads to the winning/awarding of a contract is primarily a selling/buying decision making process.

As such, most construction contracts evolve through selling/buying decision phases, some of which constitute what may be defined as 'focal points'.

However, the focal points themselves are fraught with risks of varying degrees or types.

It may also be recalled that in Section Two of the review in Chapter Five, the tendering or bidding phase, and in Chapter Six, the commitment or contract execution phase, were identified as the critical or focal points in a contract decision making process.

Consequently, the following hypotheses have also been formulated:-

- H_{3.1}. that the bidding phase offers the firm the opportunity to apply its marketing/risk management strategies.
- H_{3.2}. that 'management risk' constitutes the main risk in the contract execution phase.

Unlike most (if not all) writers on competitive bidding who see the bidding phase primarily in terms of profit or loss, this researcher perceives the profit (or loss) in terms of effectiveness (or ineffectiveness) of the marketing/risk management strategies which the firm may apply.

Therefore, the analysis of results relating to this hypothesis (H_{3.1}.) will seek to establish the importance of the bidding phase as indicated by the number of contracts obtained/awarded through competitive bidding, and the strategies which construction companies employed during the phase to manage risks.

In hypothesis H_{3.2}. the main issue is the management of diverse factors involved, which inevitably, leads to management of many sources of risks.

Therefore, this hypothesis will be examined in terms of the critical factors involved in execution of contracts, and the firm's ability to manage them.

Conclusions reached on H_{3.1}. and H_{3.2}. will then form the basis on which conclusion about H₃. will be drawn.

The bidding phase

Tables 19A and 19B below illustrate how contracts were obtained and awarded by construction companies and customers respectively.

The data of the Tables is based on construction companies and customers' answers to questions which requested them to state how the contracts on which they based their answers, were obtained/awarded respectively.

Table 19A
How contracts were obtained

Methods	Said 'YES'
Open competitive tender	14 ** (14.9)
Selective competitive tender	38 ** (40.4)
Open competitive tender and negotiation	8 * (8.5)
Selective competitive tender and negotiation	29 * (30.9)
Negotiation only	5 (5.3)
	94 (100.0)

** To be read: 55.3% of all the contracts on which the responding companies based their answers were obtained through competitive bidding only, out of which 40.4% came through selective competitive bidding.

* To be read: 39.4% of the contracts on which the responding companies based their answers were obtained through competitive bidding and negotiation.

Table 19B
How contracts were awarded

Methods	Said 'YES'
Open competitive tender	6 (7.4)
Selective competitive tender	65 * (80.3)
Open competitive tender and negotiation	1 (1.2)
Selective competitive tender and negotiation	8 (9.9)
Negotiation only	1 (1.2)
	81 (100.0)

* To be read: 87.7% of all the contracts on which the responding customers based their answers were awarded through competitive bidding, out of which 80.3% were awarded through selective competitive bidding.

The results show that most of the contracts were obtained/awarded through competitive bidding. They also show, particularly in the case of customers, (Table 19B) the dominant role which selective competitive bidding has assumed in the competitive sector of the industry since the Banwell Report of 1964.

The importance of the bidding phase is also demonstrated by Tables 20A and 20B below. The Tables are based on results from questions which asked construction companies and customers to state

the stage in the contract decision process, at which they were officially involved, and at which they would prefer to involve contractors respectively.

The reasons for the respondents' answers are presented in Table 20C.

Table 20A

When companies became officially involved in contracts

Stages	Were involved
From start	11 (11.7)
During design/specification	19 (20.2)
After design/specification	15 (16.0)
When tenders were invited	47 *(50.0)
Others	2 (2.1)
	94 (100.0)

* To be read: 50% of the responding companies became officially involved in the contracts only when tenders for them were invited.

Table 20B

When customers would prefer to involve contractors

Stages	Would involve
Right from start	1 (1.3)
When tenders are invited	71 *(91.0)
During design/specification	6 (7.7)
	78 (100.0)

* To be read: 91% of the responding customers would prefer to involve contractors in contracts only when tenders for such contracts are invited.

Table 20C

Factors which determine when to involve contractors

Factors or Reasons	Said 'YES'	Said 'NO'	N	Base %
Standing orders	24 *(32.9)	49 (67.1)	73	100.0
Delay Avoidance	7 (9.5)	67 (90.5)	74	100.0
Cost reduction	15 (20.3)	59 (79.7)	74	100.0
Design own work	48 **(64.9)	26 (35.1)	74	100.0

** To be read: 64.9% of the responding customers would not involve contractors earlier than the tendering phase because they designed their own work or projects.

* To be read: 32.9% of the responding customers had to follow the guidelines of their Standing Orders which ensured that all contracts of certain values must be let through competitive bidding.

It is obvious from the Tables that, although there are apparent differences, both results show the critical position of the bidding phase.

The factors responsible for the result in Table 20B were given mostly as explanations for involving the contractor at the tendering phase.

Apart from the fact that most public customers, particularly Local Councils, said they were guided by Standing Orders (32.9%), a majority of customers (64.9%) also said they designed their own work, and this reduced the need to involve the contractor earlier than the tendering phase.

The results presented in the preceding five Tables show, not only the importance of the bidding phase, but also the fact that

the firm's chances of winning any competitive contract rests squarely with this phase.

In this regard, the following analysis will be concerned with the strategies which construction companies applied to secure the contracts on which their answers were based.

Some writers on Organisational Buying Behaviour⁽⁷⁾ have suggested that identification of the Decision Making Unit (D.M.U.) in the buyer organisation may be essential to enable the seller organisation make a successful or effective sales approach.

To this end, construction companies were asked to state whether they identified who were likely to assess their bids before they submitted them; if so, who identified the assessors; and whether the background of the assessors was taken into account in preparing bids.

Tables 21A, 21B and 21C illustrate the responding companies' answers on these issues.

Table 21A
Identification of bid assessors

Variable	Identified	Did not identify	N	Base
Assessors Identification	54 * (57.4)	40 (42.6)	94	100.0

* To be read: 57.4% of the responding companies identified who were likely to assess their bids before they submitted them.

Table 21B
How assessor(s) was/were identified

Source	Through
Market Research Unit	3 * (5.8)
Sales force	24 * (46.2)
Discussion with customer	22 (42.2)
Information from others	3 (5.8)
	52 (100.0)

* To be read: 52% of the assessors of bids for the contracts on which companies based their answers, were identified by the companies' Marketing Departments.

Table 21C
Accounting for the assessor(s) in the bids

Variable	Accounted for	Not accounted for	N	Base %
Considering assessor(s) in bids	32 * (39.5)	49 (60.5)	81	100.0

* To be read: 39.5% of the responding companies took account of assessor's background when they were preparing bids for the contracts on which answers were based.

The results show that, through the Marketing Department (52%), most responding companies (57.4%) identified the possible assessors of their bids before they were submitted.

However, only thirty nine percent (39.5%) of the responding companies took account of the assessors' background when they were preparing their bids for contracts.

It may be recalled that, in the review in Chapter Two, we identified the search for, and utilisation of information, as one of the main strategies which decision makers use to manage perceived risks.

Tables 22A, 22B and 22C below illustrate information search by construction companies, why they undertook the search for information, and what they did with the information respectively.

The data of the Tables is based on the answers which the responding companies gave to questions which asked them whether they undertook their own investigation on the contracts before submitting their bids, why they undertook the investigation, and what they did with the resulting information, respectively.

Table 22A
Information Search

Variable	Undertook own investigation	Did not undertake own investigation	N	Base %
Own Investigation	82 *(88.2)	11 (11.8)	93	100.0

* To be read: 88.2% of the responding companies undertook their own investigation on the contracts before submitting their bids on such contracts.

The results show that most construction companies searched for and utilised information as a risk management strategy. For example, the result in Table 22A shows that most of the responding companies (88.2%) undertook their own investigation on the contracts for which they intended to submit bids.

Consequently, most of the bids (78.6%) submitted were based on both the tender documents supplied by the customers, and the results of the companies' own investigations.

Table 22B
Reasons for own investigation

Reasons	Said 'YES'	Said 'NO'	N	Base %
For low bid	12 (15.2)	67 (84.8)	79	100.0
Information verification	53** (67.1)	26 (32.9)	79	100.0
Customer's need	21 * (26.6)	58 (83.4)	79	100.0
More information	17 (21.5)	62 (78.5)	79	100.0

** To be read: 67.1% of the responding companies undertook their own investigation on the contracts to verify the accuracy of the available information.

* To be read: 26.6% of the responding companies undertook their own investigation on the contracts to find out whether the available information on the contract was accurate and/or adequate to enable the company satisfy the needs of the customer.

Table 22c
What the bids were based on

Variable	Said 'YES'
Tender documents only	16 (19.0)
Tender documents and own investigation	66 * (78.6)
Own investigation only	2 (2.4)
	84 (100.0)

* To be read: 78.6% of the responding companies based their bids on both the tender documents supplied by the customer, and the result of their investigation.

To find out whether there was any relationship between companies' perception of risk on contracts and the undertaking of their own investigations on such contracts, a (2 x 2) Cross-tabulation procedure was used. In other words, risk perception was cross-tabulated by companies' own investigations.

Statistics 1, 6 and 11 in the SPSSX CROSS-TABS command procedure were selected. The choice of statistics was justified on the ground that it would enable a more clear picture to emerge about the relationship between risk perception and companies' own investigation.

For example, while statistics 1 enabled the computer to produce the value of Chi-square, the degree of freedom (DF) and the level of significance, statistics 6 and 11 enabled the computer to calculate both Kendall and Pearson's correlation coefficients, as well as their levels of significance.

The results are presented in Table 22D. However, in presenting as well as using the results, Kendall's correlation coefficient is preferred. The justification for this preference was given in the introduction to this chapter.

Table 22D

Relationship between companies' own investigation on contracts and their perception of risk on such contracts

Statistics	DF	Value	Significance
Chi-square	1	3.367	0.066
Kendall's Tau B		0.225	* 0.015

* To be read: The relationship between companies' perception of risk on contracts, and the undertaking of their own investigation on such contracts is significant at 95% level of confidence or better.

However, what does the value 0.225 indicate? A perfect positive correlation gives a correlation coefficient of +1, while a perfect negative correlation yields a correlation coefficient of -1.

It is obvious that a correlation coefficient of 0.225 is relatively very small. Therefore, what the value 0.225 seems to indicate is that, although the relationship between companies' perception of risk on contracts, and the undertaking of their own investigation on such contracts is significant, the correlation between the two variables is not as strong as the level of significance would suggest.

The results in Table 22C show that most of the bids submitted were based on both the tender documents supplied by the customers, and the results of the companies' own investigation on the contracts.

To find out whether there was any relationship between the success of a bid and what the bid was based on, a cross-tabulation procedure, similar to that used to calculate the statistics in Table 22D was used. The result is presented in Table 22E.

In spite of the significant relationship between the two variables, the value 0.167 needs an explanation. As we have already explained the result in Table 22D above, a perfect correlation gives a correlation coefficient of +1 or -1. A correlation coefficient of 0.167 is obviously very small and far less than 1.

Therefore what the value 0.167 indicates is that, although there is a significant relationship between the two variables, the correlation between them is not strong.

Table 22E

Relationship between the success of a bid and the basing of that bid on both the tender documents and the result of the company's own investigation

Statistics	Value	Significance
Kendall's Tau B	0.167	* 0.047

- * To be read: The relationship between the success of a bid and the basing of that bid on both the information supplied by the customer and the result of the company's own investigation, is significant at 95% level of confidence.

As Table 22E shows, there was a significant positive relationship between the success of a bid and the nature of the information on which the bid was based.

The investigations which the companies undertook were primarily concerned with verification of accuracy or adequacy of available information (67.1%).

This suggests that most construction companies did not just use available information to prepare and submit their tenders, but that they took steps to ensure that the information at their disposal was not misleading.

Obviously, the companies themselves must have perceived their action as a risk management strategy. For instance, Table 22D,

which is based on the result of a cross-tabulation of company's risk perception, by company's own investigation on contracts, shows that there is a positive relationship between the perception of risk by construction companies on contracts, and their search for information on such contracts.

This relationship was also found to be highly significant at 95% level of confidence or better.

In view of the above evidence, it seems reasonable to conclude that:

- (a) there is a positive relationship between the success of a bid and the nature of the information on which the bid is based, and
- (b) there is a positive relationship between the perception of risk on particular contracts by construction companies, and their search for information on such contracts to manage perceived risks.

In Chapter Five, considerable emphasis was placed on the bid price of a contract. It was suggested that not only did company's profit on a contract depend, to a large extent on the bid price, but also the winning of the contract itself.

Elaborating on this contention, we identified a number of risks associated with submitting a 'wrong' bid price.

One such risk was the risk of "winning and losing", which could arise from how the bid price itself is determined by construction companies.

Table 23A illustrates the various criteria which construction companies used to determine their bid prices.

The Table itself is based on construction companies' answers to a question which asked them to state the basis on which they arrived at their bid prices.

Table 23A
Determination of Bid Price

Bases	Said 'YES'
Minimum acceptable profit	58 ** (62.4)
Competitors' likely bid Price	16 (17.2)
Price to cover perceived risks	19 * (20.4)
	93 (100.0)

** To be read: 62.4% of responding companies determined their bid prices on the basis of minimum acceptable profit.

* To be read: 20.4% of the responding companies based their bid prices on what they thought was high enough to cover perceived risks.

The result in the Table shows that a majority of the responding companies (62.4%) based their bid prices on 'Minimum Acceptable Profit'.

At the same time (not shown in the Table) a reasonable number of companies indicated that most of the contracts they completed were "tight contracts", implying that there was very little room to manoeuvre for large profits.

In view of the present economic situation, the result seems to suggest that construction companies based their bids on the price that "satisfices" rather than "maximises" profit.

This seems to support the discussion in Chapter Five that, although the primary objective of most construction companies submitting bids is to win contracts, they do not normally abandon their profit objective.

It seems also necessary to comment on the result especially as it affects perception of, and provision for risk: only about twenty percent (20.4%) of the responding companies indicated that they determined their bid prices on the basis of covering potential risks.

However, it seems most unlikely that the firm would consider a bid price as including a minimum acceptable profit margin if that price did not take into account any of the potential risks which may erode any profit on the project.

Therefore, it would seem that, for this reason alone, a price which provides "minimum acceptable profit", and a price which "covers perceived risks", may be basically the same, though the former provides more evidence or indication of what the firm is really aiming at.

In Chapter Five, one of the risks we identified and associated with the risks of submitting a wrong bid price, was the risk of not winning the contract.

This means that, in a competitive contract, price would, in most cases, constitute the determining factor for winning or not winning the contract.

In Tables 23B and 23C below, factors which determined the winning/awarding of contracts are presented in order of their importance.

The data of the Tables is based on construction companies and customers' answers to the following questions respectively.

"Rate the extent to which you believe the following factors influenced the winning of the contract by your company".

"Rate how important you considered the following factors when you were awarding the contract".

In each case, the respondents were given a seven-point scale (1-7) on which to rate the factors which were also given.

The results presented in Tables 23B and 23C show that most construction companies (84.0%) and customers (86.8%) considered 'Low Price' as the most influential/important factor in their winning/awarding of contracts respectively.

Other factors such as:

the reputation of the company,
its prior business relationships with customer,
its ability to complete the project on time, and
the financial position of the company,

were also considered as very important by both construction companies and customers.

However, it may be observed that the ordering of the factors, in terms of their importance, is slightly different in the results from customers (Table 23C). For example, while the responding companies considered their financial standing as the fifth most influential factor, the customers considered it as the second most important factor.

Table 23B
Factors which influenced the winning of contracts:
(as given by construction companies)

Factors	Most Influential (1-2)	Influential (3)	Fairly Influential (4)	Less Influential (5)	Least Influential (6-7)	N	Base %
Low Price	79 *(84.0)	9 (9.6)	3 (3.2)	3 (3.2)	-	94	100.0
Company Reputation	58 (62.4)	18 (19.4)	11 (11.8)	4 (4.2)	2 (2.2)	93	100.0
Prior Business Relationship	37 (39.8)	16 (17.2)	14 (15.0)	11 (11.8)	15 (16.2)	93	100.0
Early completion date	35 (37.6)	19 (20.4)	10 (10.8)	4 (4.3)	25 (26.9)	93	100.0
Company financial standing	29 (31.5)	20 (21.7)	20 (21.8)	12 (13.8)	11 (12.0)	92	100.0
Company Informal Contacts	12 (13.4)	12 (13.4)	18 (20.0)	15 (16.5)	33 (36.7)	90	100.0
Company proximity	7 (7.7)	8 (8.9)	12 (13.3)	11 (12.3)	52 (57.8)	90	100.0
Company trade union record	7 (7.8)	3 (3.4)	9 (10.2)	14 (15.7)	56 (62.9)	89	100.0
Company nationality	1 (1.1)	6 (6.6)	6 (6.6)	6 (6.6)	72 (79.1)	91	100.0
Company advertising	1 (1.1)	1 (1.1)	4 (4.4)	3 (3.3)	81 (90.1)	90	100.0

* To be read: 84% of the responding companies believed that price was the most influential factor in their winning the contracts on which their answers were based.

Table 23C
Factors which determined the awarding of contracts
(as given by construction customers)

Factors	Most Important (1-2)	Important (3)	Fairly Important (4)	Less Important (5)	Least Important (6-7)	N	Base %
Low Price	73 * (86.8)	2 (2.4)	5 (6.0)	2 (2.4)	2 (2.4)	84	100.0
Company Financial Standing	57 (68.7)	14 (16.9)	4 (4.8)	-	8 (0.6)	83	100.0
Company Reputation	43 (51.8)	16 (19.3)	11 (13.3)	-	13 (15.6)	83	100.0
Early completion date	38 (45.8)	7 (8.4)	10 (12.0)	2 (2.4)	26 (31.4)	83	100.0
Prior business relationship	30 (36.1)	10 (12.0)	13 (15.7)	5 (6.0)	25 (30.2)	83	100.0
Consultant's recommendation	17 (20.8)	3 (3.7)	14 (17.0)	4 (4.9)	44 (53.6)	82	100.0
Company proximity	4 (4.8)	11 (13.3)	13 (15.7)	10 (12.0)	45 (54.2)	83	100.0
Company trade union record	6 (7.2)	2 (3.6)	8 (9.6)	5 (6.0)	61 (72.6)	83	100.0
Company Nationality	4 (4.8)	4 (4.8)	8 (9.6)	3 (3.6)	64 (77.2)	83	100.0
Company informal contacts	4 (4.8)	1 (1.2)	8 (10.9)	6 (7.2)	63 (75.9)	83	100.0

* To be read: 86.8% of the responding customers considered price as the most important factor when they were awarding the contracts on which their answers were based.

The Hidden Factors

It is important to point out that, in spite of the performance of the factors as shown in Tables 23B and 23C, price alone assumes the role of a determining factor especially where pre-qualification of companies is defined as a separate exercise.

In such a case, the influence of most of the other factors becomes hidden.

One possible explanation for this is that the other factors may have been considered already during the pre-qualification exercise.

This removes or reduces the possibility of basing the final decision on subjective factors which may be open to different interpretations.

Statistical Significance of the Relationships

Further evidence of the relationships between the winning/awarding of contracts, and the factors in Tables 23B and 23C, is presented in Tables 23D and 23E, respectively.

The Tables (23D and 23E) are based on the results of (non-parametric) correlation analysis procedure to determine the statistical significance of the relationships between the winning/awarding of contracts, and the factors in Tables 23B and 23C respectively.

Because of the way the questions which provided the data for Tables 23B and 23C, were designed and the answers from them fed into the computer initially, it became necessary to 'recompute' them in order to enable the computer execute the SPSSX 'NONPAR CORR' command efficiently.

Option 6 was chosen so that both Kendall and Spearman's Correlation Coefficients were produced. However, only Kendall's coefficients are presented in the Tables. The reason for this being the same as the justification for using Kendall's Coefficients, which was given in the Introduction to this Chapter.

Table 23D
Kendall's Correlation Coefficients for the winning of
contracts, with each of the independent variables

Independent Variables	Value of Coefficient	Significance	No. of Cases
Low price	- 0.264	***0.002	88
Company Reputation	0.280	***0.001	88
Prior Business Relationship	0.171	** 0.025	88
Early completion date	0.060	0.247	88
Company financial standing	0.104	0.116	88
Company informal contacts	0.106	0.111	88
Company proximity	0.043	0.314	88
Company trade union record	- 0.008	0.463	88
Company nationality	0.009	0.459	88
Company advertisements	0.094	0.162	88

*** To be read: There is an inverse relationship between the bid price and the winning of contract, and that relationship is significant at 99% level of confidence.

There is a positive relationship between the reputation of a company and the winning of contract, and that relationship is significant at 99% level of confidence.

** To be read: There is a positive relationship between company's prior business relationship with the customer, and the winning of contract, and that relationship is significant at 95% level of confidence or better.

Table 23E

Kendall's Correlation Coefficients for the awarding of contract, with each of the independent variables

Independent Variables	Value of Coefficient	Significance	No. of Cases
Low price	- 0.181	** 0.044	79
Company financial standing	0.112	0.113	79
Company Reputation	0.257	*** 0.005	79
Early completion date	0.198	** 0.022	79
Prior Business Relationship	0.116	0.117	79
Consultant's recommendation	0.125	0.110	79
Company proximity	0.236	0.009	79
Company trade union record	0.017	0.431	79
Company nationality	0.198	0.028	79
Company informal contacts	0.060	0.281	79

** To be read: There is an inverse relationship between the bid and the awarding of contract, and that relationship is significant at 95% level of confidence.

There is a positive relationship between the awarding of contract and company's ability to complete the contract early or on date, and that relationship is significant at 95% level of confidence, or better.

*** To be read: There is a positive relationship between company's reputation and the awarding of contract, and that relationship is significant at 99% level of confidence.

From the results in Table 23D, it can be seen that there is a strong inverse relationship between the bid price and the winning of the contract. This relationship was also found to be highly significant at 99% level of confidence.

This means that, the lower the bid price for a contract, the higher the chances of that company winning the contract on the basis of the bid price.

The results also show that there is a strong positive relationship between the reputation of a company, and its winning of a contract. This relationship was also found to be significant at 99% level of confidence.

This suggests that, all things being equal, the higher the reputation of a company, the better its chances of winning contracts.

Another factor which was also found to have a positive relationship with the winning of a contract, was the company's prior business relationship with the customer. This relationship was also found to be significant at 95% level of confidence.

This means that the more prior business relationships a company has with customers, the more its chances of winning contracts from them.

Two of these findings, which relate or are based on the information supplied by construction companies, were also supported, or buttressed by the results in Table 23E, which is based on the data supplied by construction customers.

As the Table (23E) shows, there is an inverse relationship between the bid price and the awarding of a contract on the basis of that price. This relationship was also found to be significant at 95% level of confidence.

This means that the lower the bid price, the higher the chances that the customer would award the contract to the company which has submitted the bid price.

The results also show a strong positive relationship between the reputation of a company and the awarding of contracts to it. This relationship was found to be highly significant at 99% level of confidence.

In other words, the higher the reputation of a company, the better the chances that, all things being equal, the customer would award the contract to it.

From these results, it is obvious that both construction companies and customers considered the bid price, and the reputation of the company as having considerable influence on the winning/awarding of contracts.

However, the results appear to be less unanimous on the other factors. For example, while the results in Table 23D which is based on the information supplied by construction companies, show that there is a significant relationship between the winning of a contract and the company's prior business relationship with the customer, Table 23E which is based on the data supplied by construction customers, shows a significant relationship between the awarding of a contract to a company, and its ability to complete the project early or on date.

In general however, most of the findings are consistent with the results presented in Tables 23B and 23C, as well as the views expressed in Chapter Five.

However, some of the findings seem to have less practical relevance in the British construction industry. For instance, Table 23E shows that there is a significant positive relationship between the awarding of a contract to a company, and the nationality of that company.

However, it must be noted that, while the British customer would, under normal circumstance, prefer to award a contract to a British company, the E.E.C. regulations have made it illegal for any customer to discriminate 'openly' against any company from the member countries, on the basis of its nationality.

It can also be seen that there is a significant positive relationship between the awarding of a contract to a company, and that company's proximity to the project to be executed.

However, in view of the evidence provided in Table 23C, it would seem that the significance of the relationship is probably based on the company's accessibility in terms of inclusion of its name on the customer's list of pre-qualified companies.

The financial position of the company, which was so prominent in Table 23C, was found to have no significant relationship with the awarding of a contract.

This may be explained by the fact that most customers (see Table 11C) require a Performance Bond from construction companies, and this excludes from the contract any company whose financial position is not satisfactory.

Thus, although the financial standing of a company is important, this is catered for through the requirement for a

performance bond, and therefore it does not constitute a significant factor in the final decision on contract award.

It seems therefore, that in the final analysis, price alone becomes the determining factor, and the influence of the other factors becomes "hidden".

Negotiation Sub-phase

As results in Tables 19A and 19B have shown, some of the construction contracts involve both competitive bidding and negotiation.

In such cases, it is reasonable to expect that companies that prepared themselves for subsequent negotiations would most probably be more effective during such negotiations.

To find out what construction companies did in such situations, we asked them whether they made any preparation for subsequent negotiations, and the factors they emphasised during their preparation for negotiation.

For the purpose of rating the factors, some of which were given, the respondents were provided with a seven point scale (1-7).

The results from the questions are presented in Tables 24A and 24B respectively.

Table 24A
Preparation for Subsequent Negotiation

Variable	Prepared	Not Prepared	N	Base %
Preparation for negotiations	76 *(88.4)	10 (11.6)	86	100.0

* To be read: 88.4% of the responding companies were prepared for negotiations that might follow the bid.

The results in Table 24A show that, most of the responding companies (88.4%) prepared for subsequent negotiations after they had submitted their bids.

Table 24B

Factors which companies emphasized in preparing
for negotiations

Factors	Most Emphasised (1-2)	Emphasised (3)	Fairly Emphasised (4)	Less Emphasised (5)	Least Emphasised (6-7)	N	Base %
Identify customer's strengths and weaknesses	24 (32.9)	13 (17.8)	10 (13.7)	8 (11.0)	18 (24.6)	73	100.0
Identify competitors' strengths and weaknesses	40 ** (54.8)	10 (13.7)	9 (12.3)	3 (4.1)	11 (15.1)	73	100.0
Identify the opposite negotiator	28 * (39.4)	8 (11.3)	13 (18.3)	4 (5.6)	18 (25.4)	71	100.0
Point out advantages of buying from the company, and readiness to give customer his wish	16 (84.2)	1 (10.5)	2 (10.5)	-	-	19	100.0

** To be read: 54.8% of the responding companies most emphasized identification of their competitors' strengths and weaknesses.

* To be read: 39.4% of the responding companies most emphasized identification of the opposite negotiator(s) in their preparation for negotiation.

Table 24B on the other hand, shows that, in preparing for negotiations, most of the responding companies (54.8%) concentrated on identifying the strengths and weaknesses of their competitors.

Some of the companies also concentrated on identifying their opposite negotiators, as well as the strengths and weaknesses of the customer.

Tables 24C and 24D below illustrate the number of negotiators who had the same background and the effect of the "sameness" on negotiations respectively.

Table 25A shows the relationship between the success of negotiation and the 'sameness' of background of negotiators. The Table is based on the result of a cross-tabulation of negotiation success and negotiators' same background.

Tables 25B and 25C on the other hand, show the results of a non-parametric correlation analysis to establish the degree of relationship between negotiation success and company's negotiation skill.

The Tables (25B and 25C) are based on the results of the two questions which provided the data for Tables 23B and 23C respectively.

The result on the variable - Negotiation Skill - was not included in Tables 23B and 23C because it was inappropriate. Hence its use here.

Table 25B is based on the data supplied by the responding companies. Table 25C on the other hand, is based on the information supplied by the responding customers.

Table 24C
Negotiators' training or educational background

Variable	The Same	Not the Same	Don't Know	N	Base %
Negotiators'	41 *(51.3)	9 (11.2)	30 (37.5)	80	100.0

* To be read: 51.3% of the negotiators in the responding companies had the same training background as their opposite numbers in the buyer organisations.

Table 24D
Effect of Negotiators' background on Negotiations

Effect	Said 'YES'
Made negotiation easier	36 *(55.4)
Prolonged negotiation	1 (1.5)
No apparent effect	28 (43.1)
	65 (100.0)

* To be read: 55.4% of the negotiations between the responding companies and customer organisations were made easier because the negotiators had the same training or educational background.

Table 25A

Results of a cross-tabulation of negotiation success
by negotiators' same background

Statistics	Value	Significance	DF
Chi-Square	44.886	0.000	4
Kendall's Tau B	0.713	* 0.000	

* To be read: There is a positive relationship between the success of negotiation and the sameness of negotiators' training or educational background, and that relationship is significant at 99% level of confidence or better.

Table 25B

Kendall's Correlation Coefficient for Negotiation
Success, with Company's Negotiation Skill

Independent Variable	Kendall's Coefficient	Significance	N. of Cases
Coy. Negotiation Skill	0.375	* 0.001	42

* To be read: There is a positive relationship between the success of a negotiation and company's negotiation skill, and that relationship is significant at 99% level of confidence or better.

Table 25C
Kendall's Correlation Coefficient for Negotiation Success,
with Company's negotiation skill

Independent Variable	Kendall's Coefficient	Significance	No. of Cases
Coy. Negotiation Skill	0.300	* 0.002	10

* To be read: There is a positive relationship between negotiation success and the company's negotiation skill, and that relationship is significant at 99% level of confidence.

The results in Table 24C show that most of the negotiators (51.3%) in the responding companies had the same background as their opposite numbers in the customer organisations.

As Table 24D shows, this made most of the negotiations (55.4%) easier, though in some cases (43.1%) there was no apparent effect on the negotiations.

The result in Table 25A shows that there was a strong positive relationship between the success of negotiation and 'sameness' of the training and/or educational background of the negotiators. The relationship was also found to be significant at 99% level of confidence.

In Tables 25B and 25C, the results show a strong positive relationship between the success of negotiation and the negotiating skill of the company. The relationship was also found to be significant at 99% level of confidence.

Concluding Remark

From the evidence provided by the analyses of the results presented in this Section, there is no doubt that the bidding phase is one of the most critical phases in the company's contract selling decision making process.

Most of the contracts on which the respondents based their answers, were obtained/awarded through competitive bidding in general, and through selective competitive bidding in particular.

As such, the behaviour of most of the responding companies seemed to indicate that they recognised that their chance of winning any competitive contract depended very much on the bidding/negotiation phase.

The results also show that, most construction companies searched for, and utilised information as part of their marketing/risk management strategy against the risks they perceived during the tendering/negotiation phase.

In terms of the bid price, the results show that the strategy which most of the responding companies employed was to submit a bid price that would 'satisfice' rather than 'maximise' their profit, since a profit maximising price would most likely reduce their chances of winning the contracts.

On the whole therefore, the results show that the tendering/negotiation phase provided the construction company with the opportunity to apply its marketing/risk management strategy through an effective bidding/negotiating strategy to create comparative advantage for the firm.

In this regard, the findings have provided some support for the hypothesis $H_{3.1}$. which was that, the bidding phase offered the

firm the opportunity to apply its marketing/risk management strategy in its contract selling decision making.

Contract Execution Phase

In the review in Chapters Five and Six, we demonstrated that a contract decision process evolves through phases, each of which is fraught with risks of varying degrees.

Tables 26A and 26B below illustrate how construction companies perceived the contract decision phases in terms of risks involved in each phase.

The Tables are based on the answers which the responding companies gave to two questions which asked them to indicate which of the contract decision phases they perceived as "most risky", and the reasons for their choice, respectively.

Table 26A
Companies' Perception of Contract Decision Phases
in terms of risk

Contract Decision Stages	Perceived as most risky
Pre-tendering stage	5 (5.4)
Design/Specification Stage	5 (5.4)
Tendering Stage	17 (18.3)
Negotiation Stage	7 (7.5)
Contract Execution Stage	59 * (63.4)
	93 (100%)

* To be read: 63.4% of the responding companies perceived contract execution phase as the most risky of the decision phases.

Table 26B
Reasons for Perceiving a stage as most risky

Reasons	Said 'YES'	Said 'NO'	N	Base %
Weather Condition	30 (43.5)	39 (56.5)	69	100.0
Site management problem	33 *(47.8)	36 (52.2)	69	100.0
Sub-contractor performance	31 (44.9)	38 (55.1)	69	100.0
Test of Coy's ability to estimate	19 (27.9)	49 (72.1)	68	100.0
Variation	38** (55.9)	30 (44.1)	68	100.0

** To be read: 55.9% of the responding companies considered the contract execution phase as most risky because of the possibility of Contract Variations during the phase.

* To be read: 47.8% of the responding companies perceived contract execution phase as most risky because of unforeseen site management problems which may arise during the phase.

The results in Table 26A show that most responding companies (63.4%) perceived the contract execution phase as being the most risky phase in a contract decision process.

In Chapter Six, we maintained that the commitment or contract execution phase involves many factors some of which are totally beyond the control of the construction company.

It seems that the responding companies took the same view. At the tendering phase, the risk they faced was that of submitting a 'wrong bid' as defined in Chapter Five.

However, during the execution phase, the risks were increased because of the number of factors involved. Since the firms could not predict precisely the behaviour of all the factors involved,

most construction companies perceived the execution phase as being the most risky stage in a decision making process concerning a construction contract.

This explanation of the results in Table 26A is buttressed by the results in Table 26B. Most of the reasons given were in respect of contract execution stage.

Apart from the other reasons, most of the responding companies (55.9%) explained that the possibility of 'variations' in the initial contract made the contract execution stage most risky. (It may be recalled that the relationship between risk perception and the possibility of contract variations was found to be significant at 95% level of confidence, or better. Table 10D.)

Thus, although only fourteen companies (14) were affected by variations in the initial contracts, (Table 13D) the damage which variations could cause (see Table 13E) is serious enough to attract the attention of most of the responding companies.

Another factor which deserves comment is "test of the company's ability to estimate correctly". This was given as an explanatory variable for perceiving both the tendering and contract execution stages as being most risky.

However, in the case of the tendering stage, the company's ability to estimate was associated with the company's chances of submitting the right bid price.

In the case of the contract execution phase on the other hand, the firm's ability to estimate was associated with whether the bid price was justified by the practical problems which the company faced during the execution stage.

In general, those who chose 'test of company's ability to estimate' as a factor affecting their perception of risk in either of the two stages, gave a strong indication that the estimates upon which the bid was based, were justified only when they were borne out by the reality in the contract execution phase.

That reality is how successfully the contract has been executed for the benefit of both the company and the customer.

Table 27A below illustrates how successfully the contracts on which answers were based, were completed. Table 27B on the other hand, illustrates, in order of importance, the factors which construction companies considered were critical for the successful execution of the contracts.

The data of Table 27A is based on the responding companies' answers to a question which requested them to rate on a seven-point scale (1-7) how successful the execution of the contracts was.

Table 27B on the other hand, is based on the answers which the responding companies gave to a question that asked them to rate how critical the factors were in the execution of the contracts. The respondents were also given a seven-point scale (1-7) on which to rate the factors which were also given.

Table 27A
Contract Execution Success

Variable	Very Successful (1-2)	Successful (3)	Fairly Successful (4)	Un-Successful (5)	Very Unsuccessful (6-7)	N	Base %
Contract Execution	58 *(62.4%)	22 *(23.7)	9 (9.6)	3 (3.2)	1 (1.1)	93	100.0

* To be read: 86.1% of the contracts on which the responding companies based their answers, were successfully executed.

Table 27B

Factors affecting the execution of contract

Factors	Most Critical (1-2)	Critical (3)	Fairly Critical (4)	Less Critical (5)	Least Critical (6-7)	N	Base %
Site labour management	60 (65.2)	16 (17.4)	10 (10.9)	1 (1.1)	5 (5.4)	92	100.0
Materials management	61 (66.3)	13 (14.1)	10 (10.9)	2 (2.2)	6 (6.5)	92	100.0
Technical Know-how	54 (58.1)	19 (20.4)	10 (10.7)	2 (2.2)	8 (8.6)	93	100.0
Coy.-customer relationship	47 (50.5)	26 (28.0)	12 (12.9)	5 (5.4)	3 (3.2)	93	100.0
Coy. internal relationship	39 (41.9)	20 (21.5)	17 (18.3)	9 (9.7)	8 (8.6)	93	100.0
Contract price	34 (36.6)	10 (10.8)	13 (14.0)	10 (11.8)	26 (26.8)	93	100.0
Prompt payment by customer	29 (31.2)	16 (17.2)	19 (20.4)	8 (8.6)	21 (22.6)	93	100.0
Weather condition	30 (32.6)	10 (10.9)	16 (17.4)	11 (12.0)	25 (27.1)	92	100.0
Coy. financial position	10 (10.7)	13 (14.0)	19 (20.4)	10 (10.8)	41 (44.1)	93	100.0
Sub-contractor performance	3 (50.0)	-	-	-	3 (50.0)	6	100.0

As can be seen from the result in Table 27A, most of the contracts (86.1%) were successfully executed. This success is explained by the results in Table 27B.

In Table 27B, the results show that most of the responding companies considered effective management of site workforce (65.2%) and materials (66.3%) as being most critical for a successful execution of their contracts.

This may be attributed to a number of possible explanations. One such explanation has been given already for the results in Table 11A.

Completion of a construction project on date is a function of, among other things, the productivity of the workforce perse. However, this in itself is affected by availability of the required materials, with obvious cost implications, and how both the workforce and the materials are managed.

The know-how of the companies was regarded by a majority of the responding companies (58.1%) as the third most critical factor in the successful completion of contracts.

The variable - technical know-how - seems to have performed below expectation since the risk implications of lack of it are obvious. It is possible that the respondents misunderstood "technical know-how".

However, the result itself seems to support the view expressed in Chapter Four that, the firm should analyse itself as well as the market in order to know in which sector its know-how would be most effective.

The explanation for regarding know-how as the third most critical factor in successful completion of contract may also be given in terms of the

- (i) company performance risk which is associated with Performance Bond; and
- (ii) Product Performance Risk which is associated with Retention Clause.

It would seem that, 'know-how' was a risk management mechanism against the above risks.

In about half of the contracts (50.5%) the relationship between the company and the customer was most critical for their successful completion.

This means that, although the customer and the construction company were technically two opposing parties to a contract, they had to work together as a team in order to make the contract a success.

This explains why some companies considered the "possibility of not finding a good team" as a risk. (See the results presented after Table 12A)

It is also worth observing that the price of contract was considered most critical for its successful completion by only thirty-six percent (36.6%) of the responding companies.

This does not necessarily contradict the discussion in Chapter Five about the risk implications of submitting a wrong bid price, particularly as it concerned the risk of "winning and losing".

What it means is that, while a right bid price, based on accurate estimates, would no doubt, provide adequate financial contribution to the successful execution of the contract, the overall effect of the financial contribution depends very much on the first five factors in the Table.

This also explains why, although the bidding phase was considered the most important, it was not considered by construction companies as the "most risky" phase in the contract decision process.

Concluding Remarks

The analysis of the results presented, show that, because of the nature of the factors involved, the contract execution phase was regarded by most responding companies, as the most risky of the phases through which a contract decision evolves.

However, most of the contracts on which the respondents based their answers, were successfully completed.

This successful execution of contracts seemed to have depended, to a large extent, on how effectively and/or efficiently the factors involved were managed by the companies.

Therefore, these findings have provided some support for the hypothesis $H_{3.2}$. which was that management risk constituted the main risk in the contract execution phase of a construction contract decision process.

References

1. Rodger, L W, Marketing in a competitive economy, Associated Business Programmes, 1979, Chapter 2.
2. Nie, N et al, Statistical Package for the Social Sciences (SPSS), McGraw-Hill, 1970.
3. Siegel, S, Non-Parametric Statistics for Behavioural Sciences, International Student Edition, McGraw-Hill, 1956.
4. Nie, N et al (1970), op. cit. p 144.
5. Anderson, H N, "Scales and Statistics: Parametric and Non-Parametric", in Lieberman, B (ed.), Contemporary Problems in Statistics, Oxford University Press, London, 1971.
6. Siegel, S (1956), op. cit. p 21.
7. Simmonds, K (1968) op. cit. p 9.
8. Ansoff, H I, Corporate Strategy, McGraw-Hill, 1965, (Chapter 5).
See also - Ansoff, H I, Business Strategy, Penguin Books 1969.
9. Hussey, D E, Introducing Corporate Planning, Pergamon Press, Ltd. 1979.
10. Argenti, J, Systematic Corporate Planning, Thomas Nelson and Sons Ltd. 1981.

CHAPTER NINE

Summary and Implications of the Findings

Chapter Nine

Summary and Implications of the findings

Introduction

The main objective of this Chapter is to present a summary of the findings of the research.

The research itself was prompted by the observation that previous research on perceived risk had been concerned mainly with buyers, as opposed to sellers, on an implicit assumption that only buyers perceive risk in their decision making process.

Therefore, the aim of the research was to challenge that implicit assumption and seek to demonstrate that perception and management of risk is not an exclusive preserve of buyers alone, but that it is a common phenomenon which affects sellers as well in their selling decision making process.

The construction industry was selected for study. A programme of research was designed in such a way that, while the main emphasis still remained the construction companies, it would also allow some limited comparisons to be made between the views of the seller organisations and those of the buyers on a limited number of issues, especially where such comparisons were considered likely to reinforce or buttress particular points of view.

The research enquiry was designed not only to evaluate a number of related and broadly based hypotheses, but also to solicit some exploratory information which would be used to draw some conclusions about some issues that were not covered directly by the hypotheses.

How the Chapter is organised

The Chapter itself is divided into two sections:-

Section One presents the summary of the findings,

Section Two on the other hand, is concerned with the implications of the findings. In particular, it is concerned with how the findings relate to the hypotheses, which are also stated.

A brief conclusion is drawn at the end of the discussion of the findings, after which some of the points which may be raised against the study are presented and explained.

The limitations of the study and recommendations for further research in this area forms the final part of the Chapter.

Section One

Summary of the findings

The summary of the main findings is presented below. It is based on a careful analysis of the results from the research enquiry.

Perception and Management of risks

Most construction companies (64.9%) perceived risk when they tendered for and accepted construction contracts.

However, this was found to depend on the following factors:-

- (i) The size of the company, measured by its financial strength or capacity. In other words, given a particular contract of a reasonably high value, large construction companies are more likely to perceive less risk than relatively small (average) companies on the same contract.
- (ii) The value of the contract. The larger the amount of money involved in a construction contract, the more construction companies perceive risk in tendering for and accepting the contract; though this does not necessarily mean that the relationship is linear in all cases.
- (iii) The wording of the contract in terms of the types of clauses included in the contract, especially the liquidated damages clause, and the type of contract.

In general, contracts of reasonably high values and with duration of more than a year, tend to be mixtures of various types of contract. However, contracts, which to a large extent, were based on 'Fixed Price' appeared to be perceived

by most construction companies as being more risky than contracts that contained Price Fluctuating Clauses.

- (iv) How knowledgeable the customer was about his needs: the more knowledgeable the customer was about his needs, the less construction companies perceived risk in tendering for and accepting contracts from him.

This particular finding (iv) is closely related to the following findings:-

Firstly, most construction contracts (92.4%) were changed in one way or the other, by the customer before such contracts were completed.

Secondly, in most cases (69.2%), the changes or variations were due to changes in the needs of the customers.

This suggests that the inverse relationship between risk perception by construction companies and the extent to which the customer knew about his needs, was due to the fact that the more knowledgeable the customer was about his needs, the more likely he was to provide adequate and accurate information about his needs, and the less the chances of contract variations due to changes in the needs of the customer.

The position of the respondent in his company was found to have no significant influence on his perception of risk.

However, an exception was found in the case of Managing Directors whose perception of risk was found to be significant and inversely related to their managerial position.

Types of Risk

Although the nature of perceived risk may depend on the specific nature of the contract, it was found that, in general, the construction companies perceived the following types of risks:

- (a) Most construction companies (55.9%) perceived as risk the possibility of major changes in the contract by the customer after it had been entered into.
- (b) The completion date of contracts which contained a liquidated damages clause.
- (c) The possibility of making no profit on the contracts due to the following reasons:-
 - (i) 'Fixed Price', or 'tight contract' in an inflationary environment; and
 - (ii) Submission of too low a bid due to over-anxiety to win the contract, or wrong estimates, or both.
- (d) The possibility of not finding a buyer who would make a good team, or be prepared to develop a good working relationship.
- (e) The weather conditions.

How the risks were managed

The following two 'non-specific' risk management strategies were employed by construction companies to manage the perceived risks.

- (a) By ensuring that all the conditions that made up the contracts were written (100.0%).
- (b) By careful planning before and during the execution of the contracts (71.2%).

Apart from the above two 'non-specific' risk management strategies, specific risks were managed in the following specific ways:

- (c) The risk of completion date was managed through effective labour management defined to include the following strategies:-
 - (i) Working overtime, rather than increasing the number of workforce, where this could be implemented successfully; and
 - (ii) Introduction of incentive schemes to improve productivity.
- (d) Renegotiating the delivery date whenever the client or customer made changes in the contract that may affect the initially agreed delivery date.
- (e) The risk of the possibility of making no profit on the contract was managed in the following ways:
 - (i) By procuring sensitive materials early in the contract, and paying strict attention to cost control.
 - (ii) By double-checking key rates and preliminaries before submitting the bid, and
 - (iii) By programming accurately and monitoring the progress carefully and regularly.
- (f) The risk of the possibility of not finding a buyer who would make a good team, was managed in the following ways:-
 - (i) Companies endeavoured to find out whether the buyer would make a good team before they tendered for contracts; and

- (ii) In event of their tender being successful, they discussed potential problems openly with the buyer during the joint pre-start meeting.
- (g) The risk of adverse weather conditions was managed by:-
- (i) Providing for it in the bid, or in the wording of the contract or both, and
 - (ii) Increasing fabrication of work, as much as possible, in the shops rather than on sites. This particular strategy applied most in cases of the building construction contracts.

Use of traditional marketing methods and the role of the Marketing Department.

Analysis of the results on the use of traditional marketing methods, such as advertising, personal selling, and so on, by construction companies, and the contribution of the marketing department in the company's final decision on bid, has produced the following findings:-

- (a) Traditional marketing methods were not applied for the purpose of influencing the customer's buying decision.

Even where some were applied, they appeared to have very little or no influence on the final decision of the construction customer.

- (b) Most of the construction company's information about contracts came through the marketing department (60.9%).
- (c) However, the Marketing Department was, generally, not considered as a very important contributor in the final decision concerning the submission or acceptance of the bids.

- (d) The Quantity Surveyor/Estimator (64.4%) and the Executive Director (38.7%), constituted the core of the "Selling Decision Centre" of the construction firm, in terms of preparation and submission of bids for contracts.

The tendering phase and the bidding strategies

The analysis of the results produced the following findings on the bidding phase and the strategies adopted by construction companies during this critical phase in the buying/selling decision making process.

- (a) Most construction contracts (87.6%) were obtained through competitive bidding in general, and through selective competitive bidding in particular.
- (b) Most construction companies became 'officially' involved with the contracts when tenders for them were invited.
- (c) Most construction companies (57.4%) identified or had some ideas about who would assess their bids when they were submitted.
- (d) In most cases (52.0%), the Marketing Department was responsible for identifying the assessors of the bids.
- (e) However, even when the assessors had been identified, less than half of the bids (39.5%) took the assessors into consideration.
- (f) There was a positive relationship between the winning of contract and the bid that took the assessors into consideration, especially in a two-stage competitive contract.
- (g) Most construction companies (88.2%), undertook their own investigation on the contracts before they submitted bids for them.

- (h) This was especially the case when the companies perceived risk in their decision to tender for, and accept the contracts.
- (i) In such cases, they undertook their own investigation for the following reasons:-
 - (i) To verify the accuracy or validity of the information supplied by the customer (67.1%).
 - (ii) To find out whether the available information would lead to the production of a product that would satisfy the needs of the customer (26.6%).
 - (iii) To obtain more information which was considered necessary or useful for the success of the contract (21.5%).
- (j) Construction companies that undertook their own investigation on contracts before submitting their bids, based such bids on both the tender documents supplied by the customer, and the results of their own investigation (78.6%).
- (k) The success of a bid was found to be significant and positively related to the nature of the information on which the bid was based.
- (l) Most construction companies (62.4%) based their bid prices on minimum acceptable profit, and the prices that would cover the perceived risks (20.4%).
- (m) In single-stage competitive bidding contracts, the bid price constituted the determining factor (93.6%).

In such cases, the influence of most of the other factors becomes hidden.

- (n) In two or multi-stage competitive contracts, the bid price and the negotiating skill of the construction company formed the most important factors which determined the final outcome of the bid.

Negotiation Strategies

- (a) Most construction companies (88.4%), that tendered for contracts that involved negotiation prepared in advance, in one way or another for negotiation.

This was particularly the case where the chances of the bid being successful were reasonably high.

- (b) Negotiating with the customer was easier when the negotiators had the same training or educational background.

Because of this a good number of companies (50.7%) emphasised the need to identify the negotiator(s) in the buyer organisation, as a part of their negotiating strategies.

- (c) In negotiating, most construction companies placed a lot of emphasis on identifying the strengths and weaknesses of the customer. This was especially the case where the company was negotiating alone with the customer.
- (d) However, where other competitors were involved, most construction companies (68.5%) tended to place more emphasis on identifying the strengths and weaknesses of the competitors in order to determine their negotiating strategy.
- (e) Some companies indicated also that in negotiating, they emphasised their capability or technical know-how, and endeavoured to persuade or convince the customer that his needs would be satisfied.

In general, success in negotiation was found to be highly significant and positively related to the company's negotiating skill.

Contract Execution Phase

Results from the research enquiry have also produced the following findings on the contract execution phase.

- (a) Most construction companies (63.4%) considered the contract execution phase as the most risky of all the phases through which a construction contract process evolves.

This was because, unlike the tendering phase during which the risk was mainly that of submitting a wrong bid price, the contract execution phase involved many sources of risk because of the increased number of factors involved.

- (b) Most of the contracts (86.1%) were executed successfully. However, that success was found to depend largely on the following factors:-

(i) How effectively the construction company could manage its materials (66.3%), and human (65.2%) resources.

(ii) The technical know-how of the company (58.1%).

(iii) The relationships both between the company and the customer (50.5%), and within the company itself (41.9%).

(iv) The price of the contract (36.6%), and the weather conditions (32.6%).

Prompt payment by the customer for work done was only cited by thirty one percent (31.2%) as a factor.

The implications of the above findings and how they relate to the hypotheses will be given in the next Section.

Section Two

Implications of the findings

This study has examined three main hypotheses:-

The first hypothesis H_1 ., stated that seller organisations, represented by construction companies, perceive risk in their contract selling decision making process. As a result, they take appropriate risk management strategies to manage the perceived risks.

The second hypothesis H_2 ., suggested that, although the marketing concept is relevant in the construction industry, the nature of the industry makes it difficult for traditional marketing methods to be effective in the competitive bidding sector of the industry.

The third hypothesis H_3 ., suggested a more broadly based approach to risk management in a construction contract. It suggested that risks in construction contracts are spread along the phases through which the construction contract decision evolves.

Therefore, a careful analysis of these phases would place the seller organisation in a better position to develop more effective risk management strategies to manage the perceived risks.

It is obvious from the findings that, while the first hypothesis required, for the most part, results from relatively simple answers of the yes/no type, for its support or rejection, the requirements of the second, and especially the third hypotheses, were different.

The second hypothesis required for its support or rejection, not only a careful consideration of the extent to which construction companies applied marketing methods, and how successful they were in achieving the desired objectives, but also how construction companies

regarded the Marketing Department in terms of its overall contribution to their contract selling decision making process.

The third hypothesis on the other hand, required for its support or rejection, a careful consideration of the findings on the different critical phases through which a construction contract decision evolves.

The findings on perception and management of risk by construction companies have provided support for the first hypothesis. They show that construction companies perceived risk in their contract decision making process. As a result, they took appropriate measures to manage the perceived risks.

However, the findings on the types of risks and the strategies which construction companies used to manage them, reflect not only the diversity of the contracts on which the results were based, but also the differences in the perception of risks by the construction companies.

This would suggest that, although most construction companies perceive risk in their contract decision making process, it would be difficult to generalise about the type of risk a given construction company would perceive on a given construction contract.

Therefore, any statement of a general nature on this particular point would have to be qualified.

The second hypothesis also has been given some support by the findings on the application of traditional marketing methods to influence a customer's decision in a competitive bidding contract.

The findings demonstrate that most traditional marketing methods were neither applied with positive results for the securing of standard construction contracts, nor was the Marketing Department considered as a

very important part of the "Selling Decision Centre" of the construction companies, in terms of preparation and submission of bids for contracts.

This suggests that, although the marketing concept is relevant in the construction industry, the practice of marketing in the industry, as well as the role of the Marketing Department, at present, are limited to salesforce/market research activities.

In this regard, it seems that, unless the norms, rules and regulations, as well as the traditions which govern the conduct of decision making process on construction contracts are removed, or at least, modified, the risk management function of the marketing concept, and indeed the practice of marketing itself, cannot be exploited fully by both the sellers and the buyers in the competitive bidding sector of the industry.

However, it seems that the validity of this particular conclusion is largely a matter of how 'Marketing' is defined. If the corporate marketing approach which was suggested in Chapter Three was to apply, then it would become obvious that most of what the companies did - search for information, preparation and submission of bids, executing and delivering the completed products on time - had marketing implications.

In this particular context, one could say that marketing is already actively present in the industry but in a different form, though the companies themselves may not necessarily perceive their actions in this way.

In respect of the third hypothesis, the findings have also provided some support. Generally, they show that most of the responding companies searched for, and utilised information as part of their risk management strategies against the risks they perceived in the critical phases of competitive contract decisions.

The findings also show that the behaviour of the responding companies seems to indicate that they were not only aware of the fact that their chances of winning any competitive contract depended very much on the bidding and/or negotiation phase, but also that the phase offered them the opportunity to apply their marketing/risk management strategies to create comparative advantage for themselves in order to make a sale.

Most of the companies created such comparative advantage by ensuring that their bidding strategies concentrated more on "satisficing" rather than on maximisation of profit.

In view of the present economic situation, this finding does not only suggest that the bidding strategies of most of the responding companies took into consideration the market situation in the industry but is also consistent with Grinyer and Whittaker's findings that most winning bids normally "leave money on the table"⁽¹⁾.

Regarding the contract execution phase, the findings show that the success in the execution of contracts depended to a large extent, on efficient and effective management of the company's human and material resources, as well as its technical know-how.

This implies that a company's lack of management skills to handle the required resources at its disposal could constitute, not only a major risk for the company in the execution of contract, but also an impediment to the customer's post-purchase satisfaction.

The relationship both within the company itself, and between the company and the customer contributed greatly to the successful execution of contracts. This particular finding has a number of implications:-

First, it implies that the use of "internal marketing" and a suitable structure which allows easy access to information and good interaction among the workforce and management, is likely to have some positive influence on the performance of the workforce, and thus, on the success of contracts.

Secondly, it demonstrates the importance of buyer-seller interaction in the industrial market in general, and in the construction industry in particular.

Finally, it implies that, although the construction company and the customer are technically opposing parties to a contract, they have to work together as a team for the success of the contract.

Generally, the findings seem to suggest that the responding companies themselves regarded management of perceived risk in their contract decision making, as a continuous process along the phases through which a competitive contract decision evolves.

As a result, the behaviour of most of the responding companies seems to suggest that they considered carefully the relevant critical phases in the contract decision making process and the risks involved.

This is consistent with the third hypothesis which suggested that companies should analyse the phases through which a contract decision process evolves.

This would not only enable the company to identify the inherent risks in the phases, but also place it in a better position to develop appropriate and effective risk management strategies to manage the perceived risks.

Conclusion

It is important to recall that the main objective of this research was to establish how construction companies interpret or perceive their contract selling decision making process, in terms of perception and management of risks.

In spite of the exploratory nature of the study, three main hypotheses were formulated, and most of the discussions in the literature review section were based on them.

The hypotheses were examined through a structured mail questionnaire, and the survey data analysed through the use of a computer.

The analysis of the findings shows that all the hypotheses have been supported, though in the case of the third hypothesis, this is less obvious without a careful examination of the findings on the critical phases through which a competitive bidding contract decision process evolves.

Critique

Two main criticisms may be made against this study. The first criticism relates to the conceptualisation of the research. As it was demonstrated in Chapter Five, a standard construction contract evolves through phases, each of which has its own risks of varying degrees.

Therefore, the study may be criticised on the grounds that by attempting to cover all the contract decision making phases, the study has not been able to concentrate on one particular contract decision phase in order to cover it in greater detail.

The second criticism is concerned with the projects included in the study. It is generally agreed that different types of construction contracts present different problems.

Therefore, by lumping all types of contracts together, the peculiar problems which may be associated with certain types of contracts, have little chance of being identified. As such, some of the conclusions of the study, on this particular issue, are basically "non-specific".

However, it may be recalled that, in Chapter Seven, the justification for conceptualising the research in its present form, was provided. Therefore, the reply to the first criticism is provided in that Chapter.

As regards the second criticism, the unique nature of most construction contracts was recognised in Chapter Four.

However, it is also generally accepted that the unique elements of most construction contracts are generally less than the factors which are common to most contracts, especially in the building and civil engineering areas.

Moris⁽²⁾ for example, has observed that, although the typical form of work in a construction contract is basically concerned with "doing new things" the industrial forms through which the project is handled are often very old established indeed, including traditional customs and practices at all levels, in addition to formal procedures.

Moreover, the research was concerned with perception and management of risk. In the discussion of the findings in the first part of Chapter Eight, the differences in the types of risks and the strategies for managing them, were explained, not only in terms of the differences in the perception of risk by the companies, but also in terms of the diversity of the projects on which the research was based.

These explanations may not necessarily invalidate the above criticisms. However, they show that the researcher himself was aware of these points which may be raised against the study.

Limitations of the study and recommendations
for further research

As was explained in Chapter Seven, both economic and time constraints obviously imposed some limitations on this study.

However, some of the findings of this research have also raised a number of questions to which the present research is not in a position to provide satisfactory answers.

Most of the respondents - the customers as well as the companies, indicated that they considered the bid price as a determining factor in the awarding/winning of competitive contracts.

However, the relationship between the awarding/winning of contracts and company's reputation was found to be stronger than that between price and the awarding/winning of contracts.

Since the present research is not in a position to provide a definitive statement on this particular issue, further research may be useful to establish whether both the customers and the companies have been under-rating the influence of the seller's reputation on the final outcome of bids submitted for competitive contracts.

The findings on the positive relationship between company's nationality and the awarding of a contract seems contrary to E.E.C. regulations concerning discrimination against any company, on the basis of its nationality.

Further research may be useful to establish whether construction customers do in fact discriminate against companies of other nationalities in their decisions to award contracts.

Generally, it was found that marketing was not consciously applied as a risk management strategy by most of the responding companies.

In view of the potential role which marketing can play in the success of most modern business organisations, there is need for further research to find out how the present attitude which both the sellers and the buyers have toward marketing can be changed in order to make marketing more acceptable and effective in the industry.

The findings on the size of the company and the amount of money involved, which earlier research has shown to have considerable influence on risk perception by decision makers, seem to suggest that the relationship between risk perception and each of these two variables, is not linear in all cases.

In other words, the value of the contract did not necessarily increase or decrease a company's perception of risk on that contract.

Since the present research was not in a position to establish the factors which may be responsible for the non-linear perception function, further research in this area should include both organisational and individual factors so that the cause(s) may be identified.

REFERENCES

Grinyer, P.H. and Whittaker, J.D. (1973) op. cit.

Moris, J. (1979) op. cit., p. 159.

Professor Michael J. Baker TD BA BSc (Econ) DBA



University
of Strathclyde

STUDENT RESEARCH PROJECTS*
Department of Marketing

Stenhouse Building, 173 Cathedral Street, Glasgow G4 0RQ
Tel: 041-552 4400

June 1983.

Dear Sir,

I am a doctoral student in the Department of Marketing at Strathclyde University, Glasgow. I am undertaking a research on Perception and Management of risks in the Construction Industry.

Your company has been selected to assist in the research by way of answering a few questions. Your address was obtained from KOMPASS, United Kingdom 1982, and Key British Enterprises, 1982.

I would, therefore, be grateful if you could answer the enclosed Questionnaire, or direct it to the appropriate person(s) in your company who can answer the questions, and then return the Questionnaire as soon as possible, in the stamped, addressed envelope provided.

Your response will be treated with strict confidence and the information provided therein will be used only for the research purpose. Neither you nor your company will be identified.

It is hoped that the findings of this research will be available in the Strathclyde University Library for consultation by any of the companies that may have participated in the research.

I must, however, point out that the success of this research depends very much on your co-operation. I therefore hope that you will give me your full co-operation, and I sincerely express my thanks for that in anticipation.

Yours faithfully,

A handwritten signature in cursive script, appearing to read 'Orsaah'.

Sylvester Orsaah.

Has your company completed a contract worth at least £750,000 during 1982?

Yes

No

Don't know

If your company completed more than one contract (of at least £750,000) in 1982, choose only ONE of the contracts on which all your answers to this Questionnaire will be based.

If you can, please state:

- (a) The actual value of the contract _____
- or
- (b) The estimated value of the contract _____
- _____

SECTION A

The main objective of the questions in this section is to find out the effort your company may have made concerning the contract before the bidding stage.

Q.1 How was the contract obtained? (Please tick one only).

- Through open competitive tender only
- Through open competitive tender followed by negotiation
- Through selective competitive tender only
- Through selective competitive tender followed by negotiation
- Through negotiation only

Q.2/...

/over ...

Q.2 What type of contract was it?

Fixed price/lump sum contract

Cost reimbursement contract

Others (please specify)

Q.3(a) How did your company come to know about the contract?
(Tick one only)

Through the company's market research unit

Through the company's sales force

Through advertising by the customer himself

Through direct contact by the customer himself

Q.3(b) If direct contact, to whom was the first approach made in your firm?
(Please write in)

Q.4/...

/over ...

Q.4 At what stage of the contract did your company become involved?
(tick one only).

Right from the beginning before the product
was designed/specified.

When the product was being designed/specified

After the customer had designed/specified
the product

When tenders for the contract were invited

Q.5 Who was the customer?

Public customer:

(a) Central Government

(b) Local Authority

Commercial Organisation

Non-Commercial Organisation

Private Customer

Q.6 Before your company became involved, would you say that
the customer knew exactly what he wanted?
(tick one only).

He knew what he wanted

He did not know what he wanted

He had some ideas about what he wanted

Q.7/...

/over ...

Q.7 How detailed was the tender request?

Very detailed including drawings

Detailed specification without drawings

Not very detailed

Q.8(a) Do you think your company influenced the customer to award the contract earlier than he would have done if you had not approached them?

Yes

No

Q.8(b) If your answer to the above question is 'Yes', how was this achieved?

(Tick all which apply)

By convincing the customer that it was economically advantageous to him to award the contract earlier.

By convincing the customer that the company had the technology he was looking for.

By convincing the customer that since the product would take some time to deliver, he should award the contract earlier so as to meet his recognised needs.

Others (Please specify)

Q.8(c) If your answer to Q.8(a) above is 'No', did your company make any attempt to convince the customer to award the contract earlier than he had wanted?

Yes

No

Q.9/...

/over ...

Q.9 What proportion of your contracts came from each of the following methods?

(Please write in % for each method).

Percentage (%)

Through open competitive tender only
Through open competitive tender followed by negotiation
Through selective competitive tender only
Through selective competitive tender followed by negotiation
Through negotiation only

Q.10 What proportion of your bids are normally successful?

Less than 20%

21 - 50%

51 - 80%

More than 80%

/over ...

SECTION B

Preparation and Submission of Bid

The questions in this section seek to find out about the preparation and the submission of the bid by your company.

Please answer the questions, unless otherwise stated, by ticking the appropriate box.

Q.11(a) Did your company carry out its own investigation on the contract before submitting a bid?

Yes

No

Q.11(b) If 'Yes', was the bid based on the result of the investigation or on the information contained in the tender documents?
(Please tick one only).

It was based only on the information contained in the tender documents.

It was based both on the result of the investigation and the information contained in the tender documents.

It was based only on the result of the investigation.

Q.11(c) In undertaking the investigation what did your company hope to find out?

To identify those aspects of the product that could be eliminated from the design/specification of the product, so as to submit a low bid.

To verify the accuracy of some or all of the information supplied by the customer.

To find out whether the information which the customer provided would lead to the production of a product that would satisfy his actual needs.

Others (Please specify)

Q.12(a) Before the bid was submitted to the customer, did your company identify who was/were likely to assess the bid in the customer firm?

Yes

No

Q.12(b) If your answer to the above question is 'Yes', who identified the assessor(s)?

The company's Marketing Research Unit

The company's sales force

The assessor(s) was/were identified through a discussion with the customer or his representative.

Others (please specify)

Q.12(c) In preparing the bid, did your company take into account the background of the assessor(s) who had been identified?

Yes

No

Q.12(d) In what ways? (Please write in).

Q.13/...

/over ...

Q.13(a) On what basis did your company arrive at the bid price?
(Please tick one only)

A price -

which would yield a minimum acceptable profit margin

which was likely to be the bid price of other competitors

which the company thought was high enough to cover potential risks.

Q.13(b) Was the bid price purposely made low so as to win the contract?

Yes

No

Q.13(c) If 'Yes', was this in the hope of being able to renegotiate a higher price later?

Yes

No

Don't know

Q.13(d) If your answer to the above question (Q.13c) is 'Yes', was this objective achieved?

Yes

No

Don't know

Q.14/...

/over ...

Q.14 Which of the following people helped determine the bid price?
(Please rank order in terms of importance)

The Quantity Surveyor/Estimator

The Civil Engineer

The General Manager

The Executive Director

The Marketing Manager

The Accountant

Q.15(a) After the bid had been submitted, did your company make any other effort to influence the result of the bid in its favour?

Yes

No

Don't know

Q.15(b) If 'Yes', please explain briefly the nature of the effort.

Q.16/...

/over ...

- Q.16 Rate the extent to which you believe the following factors influenced the winning of the contract by your company.
(circle the number that most closely corresponds with your view).

	Most in- fluential				Least in- fluential		
	1	2	3	4	5	6	7
Low price	1	2	3	4	5	6	7
Prior business relationship with the customer	1	2	3	4	5	6	7
Company's good financial standing	1	2	3	4	5	6	7
Company's reputation	1	2	3	4	5	6	7
Company's record with Trade Unions	1	2	3	4	5	6	7
Company's proximity to the customer	1	2	3	4	5	6	7
The skill of the negotiating team	1	2	3	4	5	6	7
Informal contacts with the customer	1	2	3	4	5	6	7
Early completion date	1	2	3	4	5	6	7
Nationality of the company	1	2	3	4	5	6	7
Company's advertisement	1	2	3	4	5	6	7

/over ...

SECTION C

Anticipation and Preparation for the Result of the Bid

The main objective of the questions in this section is to find out whether the company expected a particular result from its bid: and how prepared the company was for any subsequent negotiation with the customer.

Please answer the questions, unless otherwise stated, by ticking the appropriate box.

Q.17(a) What probability did you attach to the likelihood of your bid being successful?

- Less than 20%
- 21 - 50%
- 51 - 80%
- Better than 80%

Q.17(b) Was your company prepared for the negotiation that might follow the bid?

- Yes
- No

Q.17(c) If 'Yes', please rate the following points in terms of your company's emphasis during preparation for the negotiation. (Circle the number which most closely corresponds with your view).

	Most im- portant					Least im- portant	
	1	2	3	4	5	6	7
Finding out the customer's strengths and weaknesses which are relevant to the negotiation							
Identifying the likely competitors and assessing their strengths and weaknesses in order to determine their likely line of negotiating with the customer							
Making/...							

/over ...

		Most im- portant				Least im- portant		
Q.17(c) continued	Making an effort to identify with whom the company would be negotiating	1	2	3	4	5	6	7
	Others (Please write in and rate)	1	2	3	4	5	6	7

Q.18(a) Did your company's negotiator have the same training or educational background as his opposite number?

Yes

No

Don't know

Q.18(b) What effect do you think this had on the negotiation?
(Tick one only)

It made negotiation easier because they understood each other.

It made negotiation difficult because they did not understand each other.

It prolonged the negotiation because they insisted on too many minute details which should have been left to be worked out later.

It made negotiation impossible.

No apparent effect

Others(Please write in)

Q.19(a) Did you perceive any risk in your decision to tender for and accept this contract?

Yes

No

Q.19(b) If 'Yes' to Q.19(a) above, what type of risk did you perceive?
(Please write in)

Q.19(c) What did you do to eliminate or reduce the risk?
(Please write in)

/over ...

SECTION DContracting and Execution of the Contract

The questions in this section seek to find out from you two main things:

1. The extent to which the wording of the contract legally protected both the customer and your company from certain types of risks;
2. The problems which your company may have encountered during the execution of the contract.

Please answer the questions, unless otherwise stated, by ticking the appropriate box.

Q.20(a) Was the contract between your company and the customer a verbal contract based on mutual trust, or was it a written contract?
(Please tick one only)

It was a verbal contract based on a mutual trust

It was a written contract

Q.20(b) What in your view was/were the main reason(s) for your company preferring to choose or accept a written or verbal contract?
(Please write in)

Q.20(c) Which of the following clauses or conditions were included in the wording of the contract? (Tick all which apply).

Liquidated damages clause

Performance bond

Conditions for price adjustment

Conditions/provisions for alterations or additions

Retentions clause

Q.21/...

/over ...

Q.21(a) Was the existing know-how in the company sufficient to execute the contract, or did the company have to find the know-how after the contract had been won?
(Please tick all which apply)

The existing know-how in the company was sufficient

The company had to find the know-how after the contract had been won

Q.21(b) If the know-how had to be found after the contract had been won, was this -

Only additional know-how

Extensive know-how and skills which the company did not have

Q.22(a) Did your company experience any stoppage of work during the time of construction?

Yes

No

Q.22(b) If your answer to Question 22(a) is 'Yes', please rank order the following factors in terms of their contribution to the stoppage.

Poor labour relations

Bad weather conditions

Shortage of required materials

Cash flow problems

Others (Please write in and rank-order)

Q.22(c)/...

/over ...

Q.22(c) If poor labour relations was the main cause, was it the site labour or office staff?

It was site labour

It was office staff

Q.22(d) If cash flow problem was the main cause, was it due to -

'delayed payment' by the customer

the fault of the company's financing sources

Q.23(a) Before your company completed the construction of the product, were there any alterations or additions in the original specifications of the product?

Yes

No

Don't know

Q.23(b) If there was any alteration or addition, was it the customer that initiated it or was it your company?

It was the customer

It was the company

Q.23(c) If there was any alteration or addition, why was this necessary? (Tick all which apply)

The initial design/specification was faulty

It was to improve performance

It was to reduce production costs

It was because the customer's needs changed

It was because the company could not produce the product on the original design/specification

Others (Please specify)

Q.23(d) Did this adversely affect the company's performance on the contract?

Yes

No

Don't know

Q.23(e) If 'Yes', could you please state briefly in what way it affected the company?

Q.24 Please rate how critical the following factors were in the execution of the contract.

	most critical							Least critical
	1	2	3	4	5	6	7	
Materials management	1	2	3	4	5	6	7	
The relationship between the customer and the company	1	2	3	4	5	6	7	
The relationships within the company itself	1	2	3	4	5	6	7	
Site labour management	1	2	3	4	5	6	7	
Technological know-how of the company	1	2	3	4	5	6	7	
The contract price	1	2	3	4	5	6	7	
The financial position of the company	1	2	3	4	5	6	7	
Prompt payment by the customer for work done	1	2	3	4	5	6	7	
Weather conditions	1	2	3	4	5	6	7	
Others (please write in and rate)	1	2	3	4	5	6	7	
<hr/>								
<hr/>								
<hr/>								

Q.25 How successful would you rate this contract in terms of your expectations? (Please circle one number only).

	Very successful						Very unsuccessful
	1	2	3	4	5	6	7

Q.26(a) Looking over the contract, which of the following stages would you say your company perceived as being the most risky? (Tick one only)

- Pre-tendering stage
- Design/Specification stage
- Tendering stage
- Negotiation stage
- Contracting and execution of contract stage
- Others (please specify)

Q.26(b) Please state briefly the reasons for your choice in Question 26(a).

Thank you very much for your co-operation.

Name

Position in the company

Name of the company

Date



University
of Strathclyde

STUDENT RESEARCH PROJECTS*
Department of Marketing

Stenhouse Building, 173 Cathedral Street, Glasgow G4 0RQ
Tel: 041-552 4400

June 1983.

Dear Sir,

I am a doctoral student in the Department of Marketing at Strathclyde University, Glasgow. I am undertaking research on Perception and Management of risks in the Construction Industry.

Your organisation has been selected to assist in the research by way of answering a few questions.

I would, therefore, be grateful if you could answer the enclosed Questionnaire, or direct it to the appropriate person(s) in your organisation who can answer the questions, and then return the Questionnaire as soon as possible, in the stamped addressed envelope provided.

Your response will be treated with strict confidence and the information provided therein will be used only for the research purpose. Neither you nor your organisation will be identified.

It is hoped that the findings of this research will be available in the Strathclyde University Library for consultation by any of the organisations that may have participated in the research.

I must, however, point out that the success of this research depends very much on your co-operation. I therefore hope that you will give me your full co-operation, and I sincerely express my thanks for that in anticipation.

Yours faithfully,

A handwritten signature in cursive script, appearing to read 'Sylvester Orsaah'.

Sylvester Orsaah.

If you have not awarded any construction contracts in recent years, please go straight to Q.3.

If you have awarded more than one contract in recent years, choose only ONE of the contracts on which all your answers to this Questionnaire will be based.

If it is possible, please state:

(a) the value of the contract

or

(b) the estimated value of the contract

SECTION A

The questions in this section seek information:

- (a) which is general in nature; and
- (b) which may have had some influence on you or your organisation before tenders were invited.

Q.1 How was the contract awarded?
(Please tick one only)

- Through open competitive tender only
- Through open competitive tender followed by negotiation
- Through selective competitive tender only
- Through selective competitive tender followed by negotiation
- Through negotiation only

Q.2/...

/over ...

Q.2(a) What type of contract was it?

Fixed price/Lump sum contract

Cost reimbursement contract

Others (please specify)

.....
.....
.....
.....
.....

Q.2(b) Why did you choose this particular type of contract?
(Please write in)

.....
.....
.....
.....
.....
.....
.....
.....
.....

Q.3(a) Which of the following types of contract do you normally choose?
(please tick one only)

Fixed price/Lump sum contract

Cost reimbursement contract

Others (please specify)

.....
.....
.....

Q.3(b)/...

/over ...

Q.3(b) Please give reason(s) for your choice in Q.3(a) above

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Q.4 Before tenders were invited, did you know exactly what you wanted?
(tick one only)

I did not know what I wanted

I knew exactly what I wanted

I had some ideas about what I wanted

Others (please specify)

.....

.....

Q.5(a) Before tenders were invited, did any company persuade you, in any way,
to award the contract to it?

Yes

No

Q.5(b) If 'Yes' to Q.5(a) above, in what way? (please write in)

.....

.....

.....

.....

.....

.....

.....

.....

.....

Q.5(c) Did any approach from a company before the award of the contract have any positive impact on your final decision?

Yes

No

Q.6(a) Did you perceive any risk in your decision to award the contract?

Yes

No

Q.6(b) If 'Yes' to Q.6(a) above, what type of risk did you perceive?
(please write in)

.....
.....
.....
.....

Q.6(c) What did you do to eliminate or reduce the risk?
(please write in)

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

/over ...

SECTION B

The questions in this section seek to find out how you or your organisation evaluated and selected the winning bid.

Q.7 To what extent did the following people help in the evaluation and selection of the bids? (Please rank-order them in terms of their contribution; i.e. rank the most important influence '1' and so on).

- The Chief Executive
- The Quantity Surveyor/Estimator
- The Architect
- Your Consultant
- The Accountant
- The Marketing Manager
- Others (please specify)
-
-
-

Q.8 Rate how important you considered the following factors when you were awarding the contract. (Circle the number that most closely corresponds with your view).

	Most im- portant					Least im- portant	
	1	2	3	4	5	6	7
Low Price	1	2	3	4	5	6	7
Your prior business relationship with the company	1	2	3	4	5	6	7
Good financial standing of the company	1	2	3	4	5	6	7
Good reputation of the company	1	2	3	4	5	6	7
The skill of the company's negotiating team	1	2	3	4	5	6	7
Nationality of the company	1	2	3	4	5	6	7
Early completion date	1	2	3	4	5	6	7
Consultant's recommendation	1	2	3	4	5	6	7
The company's proximity to the site of the contract	1	2	3	4	5	6	7
The company's record with trade unions	1	2	3	4	5	6	7
The company's informal contacts with you	1	2	3	4	5	6	7

SECTION C

The questions in this section seek to find out about some aspects of:

- (a) the wording of the contract; and
- (b) event(s) which may have taken place during the execution of the contract.

Q.9 Which of the following clauses or conditions did you include in the wording of the contract? (Tick all which apply)

- Liquidated damages clause
- Performance bond
- Retentions clause
- Contract price adjustment clause
- Condition for alterations
- None of the above

Q.10(a) Did you have to apply any of the clauses (in Q.9 above) to protect your interest?

- Yes
- No

Q.10(b) If 'Yes' to Q.10(a) above, which one(s)? (please write in)

.....

.....

.....

Q.11(a) Before the contract was completed, was there any addition/alteration in the original specification/design?

- Yes: Addition Alteration
- No
- Don't know

Q.11(b)/...

/over ...

Q.11(b) If 'Yes' to Q.11(a) above, who initiated it?

It was the Construction Company

It was I (the customer) who initiated it

Q.11(c) Why was the addition/alteration necessary?
(tick all which apply)

The initial design/specification was faulty

It was to improve product performance

It was to improve production cost

It was because the company could not produce the product on the original design/specification

It was because my (the customer's) needs changed

Others (please specify)

.....
.....
.....

Q.11(d) Did this adversely affect the completion date?

Yes

No

Q.12(a) Was there any stoppage during the construction of the product?

Yes

No

Q.12(b)/...

/over ...

Q.12(b) If 'Yes' to Q.12(a) above, what led to this stoppage?
(please write in)

.....
.....
.....
.....
.....
.....
.....
.....

Q.12(c) Did this adversely affect:

Contract price	<input type="checkbox"/>
Delivery date	<input type="checkbox"/>
Neither of the above	<input type="checkbox"/>
Don't know	<input type="checkbox"/>

/over ...

SECTION D

Q.13 How would you rate the performance of the contractor?
(circle the number which most closely corresponds with your view)

Very satisfactory							Very unsatisfactory
	1	2	3	4	5	6	7

Q.14(a) Based on your own experience of this particular contract, which of the following do you prefer? (tick one only)

Involving the construction company right from the beginning before the product is designed/specified

Involving the construction company through tenders only after the product has been designed/specified

Involving the construction company during the design/specification of the product

Others (please specify)

.....
.....
.....

Q.14(b) Please state the reason(s) for your choice in Q.14(a).

.....
.....
.....
.....
.....
.....
.....
.....
.....

Thank you very much for your co-operation.

Name:

Position in the Organisation:

Name of the Organisation:

Date:

BIBLIOGRAPHYBOOKS

- Ackoff, R L, A Concept of Corporate Planning, Wiley Interscience, 1970.
- Adrian, J J, Business Practices for Construction Management, Elsevier Publishing Co. Ltd., 1971.
- _____, Quantitative Methods in Construction Management, Elsevier, 1973.
- Ansoff, H I, Corporate Strategy, McGraw-Hill Book Co. 1965.
- Argenti, J, Systematic Corporate Planning, Thomas Nelson & Sons Ltd., 1981.
- Atkinson, I, Construction Management, Elsevier Publishing Co. Ltd. 1971.
- Baker, M J et al, Marketing: Theory and Practice, The Macmillan Press, 1983.
- Baker, M J, Marketing: An Introductory Text, The Macmillan Press, 1981.
- _____, Marketing New Industrial Products, The Macmillan Press, 1975.
- _____, Market Development: A Comprehensive Survey, Penguin, 1983.
- Bell, M L, Marketing: Concept and Strategy, Houghton Mifflin, Boston, 1979.
- Bonny, J B and Frein, J P (eds.), Handbook of Construction Management and Organisation, Van Nostrand, R. Coy. N.Y., 1973.
- Bowley, M, The British Building Industry, Cambridge Univ. Press, 1966.
- Brech, E F L (ed.), Construction Management in Principle and Practice, Longman, 1971.
- Britt, S H, Psychological Principles of Marketing and Consumer Behaviour, Lexington Books, Mass., 1978.
- Britt, S H and Boyd, H W, Marketing Management and Administrative Action, McGraw-Hill Book Coy. N.Y., 1978.
- Burgess, A R (ed.), Management in the Construction Industry, Macmillan Press, 1979.

- Burns, C and Quar, J N, Commercial Law of Scotland, William Hodge & Co. Ltd., Glasgow 1980.
- Carlson, Sune, International Financial Decision, North-Holland Publishing Co., 1969.
- Calvert, R E, Introduction to Building Management, Butterworths, 1981.
- Cannon, T, Basic Marketing, Holt Business Texts, London, 1980.
- Chisnall, P M, Effective Industrial Marketing, Longman, London, 1977.
- Cotton, R R, Industrial Purchasing: Principles and Practices, Charles E M Books, Ohio, 1962.
- Corey, E R, Industrial Marketing: Cases and Concepts, Prentice Hall Inc., N.J., 1976.
- Cox, D F (ed.), Risk Taking and Information Handling in the Consumer Behaviour, Boston, Harvard Univ. 1967.
- Chanon, D F, The Strategy and Structure of British Enterprises, Macmillan, 1973.
- Drucker, P F, Managing for Results, Heinemann, London, 1964.
- _____, Management: Tasks, Responsibilities and Practices, Harper and Row, N.Y., 1973.
- _____, The Practice of Management, Pan Books, 1968.
- Enis, B M, Marketing Principles, Good Year Publishing Co., Calif. 1980.
- Ewing, D W, The Practice of Planning, Harper and Row, 1968.
- _____, The Human Side of Planning, Macmillan, 1969.
- Fulman, R M, The New Marketing, Macmillan Publishing Co. 1976.
- Fisher, L, Industrial Marketing - An Analytical Approach to Planning and Execution, Business Books, London, 1969.
- Galbraith, J K, The New Industrial State, Boston, 1967.
- _____, The Affluent Society, Penguin Books, 1969.
- Gist, R R, Marketing and Society, The Dryden Press, 1974.

- Hage, J and Aiken, M, Social Change in Complex Organisation, Random House, N.Y., 1970.
- Hall, R H, Organisations: Structure and Process, Prentice-Hall, 1972.
- Hakansson, H (ed.), International Marketing and Purchasing of Industrial Goods: An Interaction Approach, John Wiley and Sons, 1982.
- Halter, A N and Dean, G W, Decisions Under Uncertainty, Cincinnati, South-Western Pub. Co., 1971.
- Hill, M R et al, Industrial Marketing, Irwin Inc. 1975.
- Harris, F and McCaffer, R, Modern Construction Management, Granada Publications, London 1983.
- Hawkins, I D et al, Consumer Behaviour, Business Publications, 1983.
- Hill, R W, Marketing Technological Products to Industry, Pergamon Press, Oxford, 1973.
- Hill, R W and Hillier, T J, Organisational Buying Behaviour, The Macmillan Press, 1982.
- Hise, T R et al, Basic Marketing: Concepts and Decisions, Winthrop Publishers, Cambridge, 1979.
- Hussey, D E, Introducing Corporate Planning, Pergamon Press Ltd. 1979.
- Hutt, M D and Speh, T W, Industrial Marketing Management, Dryden Press, London, 1981.
- Ian, MacLean, (ed.), Handbook of Industrial Marketing and Research, Kluwer Harrap Handbooks, London, 1976.
- James, B G S, Integrated Marketing, Batsford Ltd., London, 1967.
- Jepson, W B and Nicholson, M P, Marketing and Building Management, M & T Publishing Co. Ltd., Lancaster, 1972.
- Khandwalla, P N, The Design of Organisations, Harcourt, B J., N. Y., 1977.
- Kogan, N and Wallach, M A, Risk Taking, Holt, Rinehart and Winston, N.Y., 1964.
- Kotler, P, Principles of Marketing, Prentice-Hall, N.J., 1980.

- Kurtz, D L and Boon, L, Marketing, The Dryden Press, N.Y. 1981.
- Knight, F H, Risk Uncertainty and Profit, Houghton Mifflin Co., N.Y. 1965.
- Keeting, D, Building Contracts, (4th ed.), Sweet and Maxwell London, 1978.
- Killat, D T et al, Strategic Marketing, Holt, Rinehart and Winston, N.Y., 1972.
- King, R L (ed.), Marketing and the New Science of Planning, 1968.
- Lipson, H A and Darling, J R, Marketing Fundamentals: Text and Cases, John Wiley & Sons, N.Y. 1974.
- Maher, P R, Introduction to Construction Operations, John Wiley & Sons, N.Y., 1982.
- Marsh, P D V, Contract Negotiation Handbook, Gower Press Ltd., 1979.
- McCarthy, J E, Basic Marketing (6th ed.) Richard D Irwin Inc. Illinois, 1978.
- McNulty, P A, Management of Small Construction Projects, McGraw-Hill Book Co., 1982.
- Mintzberg, H, The Structure of Organisations, Englewood, Cliffs, N.J., 1979.
- Magnusen, K O, Organisational Design, Development and Behaviour, Scott, Foresman and Coy. 1977.
- Miles, Derek, The Small Building Contractor and the Client, Intermediate Technology Publication Ltd., 1980.
- Newman, W H et al, The Process of Management, (3rd ed.), Prentice Hall, 1972.
- Norusis, J M, Introductory Statistics Guide, (SPSSX), McGraw-Hill, N.Y., 1983.
- Oliver, G, Marketing Today, Prentice-Hall, 1980.
- Packard, V, The Hidden Persuaders, Penguin Books, 1981.
- Pilcher, R, Principles of Construction Management, McGraw-Hill, London, 1976.
- Powell, C G, An Economic History of the British Building Industry, 1915-1979, The Architectural Press Ltd., London, 1980.

- Robert, W H, Industrial Marketing Management, Kent Publishing Co., 1982.
- Robinson, P J and Faris, C W, Industrial Buying and Creative Marketing, Allyn and Bacon Inc., Boston, 1967.
- Riseley, G, Modern Industrial Marketing, McGraw-Hill, N.Y., 1972.
- Rodger, L W, Marketing in a Competitive Economy, Associated Business Programmes, London, 1979.
- Royer, K, The Construction Manager, Prentice-Hall, 1974.
- Sayles, L and Chandler, M, Managing Large Systems, Harper and Row, N.Y., 1971.
- Schiffman, G L and Kanuk, L L, Consumer Behaviour, Prentice-Hall, 1983.
- Stacey, N A H and Wilson, A, Industrial Marketing Research - Management and Technique, Hutchinson, London, 1963.
- Stanton, W J, Fundamentals of Marketing, McGraw-Hill Book Co., N.Y., 1978.
- Star, H S et al, Problems in Marketing, McGraw-Hill, 1977.
- Sizer, J, An Insight into Management Accounting, Penguin Books, 1981.
- Sharpe, W F, Portfolio Analysis and Capital Markets, McGraw-Hill, N.Y., 1970.
- Steiner, C A, Top Management Planning, Macmillan, 1969.
- Tull, S D and Hawkins, I, Del. Marketing Research, Collier Macmillan, 1980.
- Uff, J, Construction Law, Sweet and Maxwell, 1981.
- Van Horne, Financial Management and Policy (4th Ed.), Prentice-Hall, N.J., 1977.
- Walley, B H, How to apply Strategy in Profit Planning, Business Books, 1971.
- Weber, M, The Theory of Social and Economic Organisation, The Free Press, N.Y., 1921/1949.
- Webster, E F, Industrial Marketing Strategy, Ronald Press, 1979.

- Weld, C, Marketing Architectural and Engineering Services, Van Nostrand, Reinhold Coy., N.Y. 1971.
- Wentz, W B, Marketing, West Publishing Coy., Minnesota, 1979.
- Weston, J F and Brigham, E F, Managerial Finance (British Edition), Holt Rinehart and Winston, 1978.
- Willsmer, R L, The Basic Arts of Marketing, Business Books Ltd., London, 1976.
- Wills, G S C, Contemporary Marketing, Pitman Publishing Co., London, 1971.
- Winkler, J, Winkler on Marketing Planning, Cassel/Associated Business Programme, 1972.
- Woodside, G A (ed.), Consumer and Industrial Buying Behaviour, North-Holland, N.Y., 1979.
- Wilson, A (ed.), The Marketing of Industrial Products, Hutchinson, London, 1966.

JOURNALS, PAPERS, THESES AND REPORTS

- Alba, U N, "Economics and Risk", The Geneva Papers on Risk and Insurance, No. 16, 1980.
- Alderfer, C P and Bierman, H, "Choices with Risk: Beyond the Mean and Variance", Journal of Business, July 1970.
- Ames, C B, "Trappings vs. Substance in Industrial Marketing", Harvard Business Review, July-Aug. 1970.
- Anderson, R M, "Handling Risk in Defense Contracting", Harvard Business Review, 1969.
- Armstrong, J S, "Advocacy and Objectivity in Science", Management Science 25, May, 1979.
- Arndt, J, "The Proper Scope and Content of Marketing", Management Decision, vol. 6, No. 6.
- _____, "Role of Product-Related Conversations in the Diffusion of New Product", Journal of Marketing Research, vol. 4, Aug. 1967.
- Banwell, H G, The Placing and Management of Building Contracts, H.M.S.O., 1964.

- Barach, J A, "Advertising Effectiveness and Risk in the Consumer Decision Process", Journal of Marketing Research, vol. vi, Aug. 1969.
- Barnes, J D et al, "Comparing Imputed and Actual Utility Functions in a Competitive Bidding Strategy", Decision Science, Oct. 1976.
- Bartels, R, "The General Theory of Marketing", Journal of Marketing vol. 32, Jan. 1968.
- Bauer, R A, "Risk Handling in Drug Adoption: The Role of Company Preference", Public Opinion Quarterly, No. 25, 1961.
- Bauer, R A and Cox, D F, "Self-Confidence and Persuasability in Women", Public Opinion Quarterly, (Fall), 1964.
- Boland, J, "Go out and Sell", The Construction News, April 1, 1982.
- Benjamin, N B H, "Competitive Bidding for Building Construction Contracts", Tech. Report, No. 106, Department of Civil Engineering, Stamford University, June, 1969.
- Bell, G D, "Self-Confidence and Persuasion in Car Buying", Journal of Marketing Research, Vol. iv, Feb. 1969.
- Bell, M L and Emory, C W, "The Faltering Marketing Concept", Journal of Marketing, 1971.
- Bennett, R C and Cooper, G R, "The Misuse of Marketing: An American Tragedy", Business Horizons, vol. 24, no. 6, Nov. 1981.
- Bennet, P D and Mandell, R M, "Pre-purchase Information Seeking Behaviour of New Car Purchasers: The Learning Hypotehsis", Journal of Marketing Research, vol. vi, Nov. 1969.
- Binswanger, P H, "Attitudes toward Risk: Theoretical Implications of an Experiment in Rural India", The Economic Journal, No. 364, Dec. 1981.
- Burns, C W et al, "Contractual Relationships in Construction", Journal of the Construction Division, (ASCE), vol. 101, No. CO4, Dec. 1975.
- Birse, P, "Buying and Selling Construction in the future", Purchasing and Supply Management, July, 1983.
- Bonoma, V T, "Major Sales: Who really does the buying", Harvard Business Review, May-June, 1982.

- Buss, T, "Is the Marketing Concept really another Myth?", Industrial Marketing and Advertising, Summer, 1979.
- Cardozo, R N and Cagley, J W, "Experimental Study of Industrial Buyer Behaviour", Journal of Marketing Research, vol. viii, Aug. 1971.
- Conrath, D, "From Statistical Decision Theory to Practice: Some Problems with the Transition", Management Science, April, 1973.
- ✓ Cooley, P L, "A Multidimensional Analysis of Institutional Investor Perception of Risk", Journal of Finance, vol. xxxii, No. 1, March, 1977.
- Cox, D F and Rich, S U, "Perceived Risk and Consumer Decision-Making - The Case of Telephone Shopping", Journal of Marketing Research, Nov. 1964.
- Crosier, K, "What exactly is Marketing?", Quarterly Review of Marketing, Winter, 1975.
- Crum, R L et al, "Risk Preference: Empirical Evidence and its Implications for Capital Budgeting", NIJENRODE Studies in Business, vol. 6, 1981.
- Emmerson, H, The Survey of Problems before the Construction Industry, H.M.S.O. 1962.
- Crow, L E et al, "Industrial Buyers' Choice Strategies: A Protocol Analysis", Journal of Marketing Research, vol. xvii, Feb. 1980.
- Dictcher, E, "Industrial Buying is based on Same "Only Human" Emotional Factors that Motivate Consumer Market Housewife", Industrial Marketing, Feb. 1973.
- Duncan, B R, "Characteristics of Organisational Environment and Perceived Environmental Uncertainty", Administrative Science Quarterly, vol. 17, No. 3, 1972.
- ✓ Erikson, C A, "Risk Sharing in Construction Contracts", Unpublished Ph.D. 1979, University of Illinois at Urbana-Champaign.
- Edelman, F, "Art and Science of Competitive Bidding", Harvard Business Review, July-Aug. 1965.
- Fidler, E et al, "An experiment on Executive Decision Making", Management Science Research Report, No. 407, Carnegie-Mellon University, July 1977.

- "U.K. Building Industry", Financial Times, May 31st, 1984.
- Friedman, M et al, "The Utility Analysis of Choices Involving Risk", Journal of Political Economy, Aug. 1948.
- Grinyer, P H and Whittaker, D J, "Managerial Judgement in a Competitive Bidding Model", Operational Research Quarterly, vol. 24, No. 2, 1973.
- Gronhaug, K, "Search Behaviour in Organisational Behaviour", Industrial Marketing Management, vol. 4, 1975.
- Gross, I, "Purchasing Decisions Under Conditions of Uncertainty", Journal of Purchasing, vol. 4, no. 2, May 1968.
- Hakanson, H and Wootz, B, "Supplier Selection in an International Environment - An Experimental Study", Journal of Marketing Research, vol. xii, Feb. 1975.
- Hertz, D B, "Risk Analysis in Capital Investment", Harvard Business Review, Sept.-Oct. 1979.
- _____, "Investment Policies that Pay Off", Harvard Business Review, Jan-Feb. 1968.
- Hillier, T J, "Decision-Making in the Corporate Industrial Buying Process", Industrial Marketing Management, vol. 4, No. 2, 1975.
- Institute of Marketing: the Construction Industry Marketing Group Report, 1970-71.
- _____, The Construction Industry into the 90s - A Forecasting Exercise, June 1981.
- Jackson, B, "Manage Risk in Industrial Pricing", Harvard Business Review, July-Aug. 1980.
- James, B G S, "The Industrial Market - Practices, Motives and their Marketing Implications", British Journal of Marketing, vol. 1 (Spring) 1967.
- Joy, O M and Barron, F H, "Behavioural Risk Constraints in Capital Budgeting", Journal of Financial and Quantitative Analysis, No. 1974.
- Kahneman, D et al, "Prospect Theory: An Analysis of Decision Under Risk", Econometrica, March, 1979.
- Kennedy, A M, "Buyer Behaviour - Review and Discussion", Working Paper, Dept. of Marketing, University of Strathclyde, Glasgow, 1981.

- Larreche, J and Moinpour, R, "Managerial Judgement in Marketing: The Concept of Expertise", Journal of Marketing Research, May 1983.
- Laurance, J, "When to run Risks", Management Today, April, 1983.
- Lear, R W, "No easy road to Market Orientation", Harvard Business Review, Sept-Oct. 1963.
- Libby, R and Fishburn, P, "Behavioural Models of Risk Taking in Business Decisions: A Survey and Evaluation", Journal of Accounting Research, Autumn, 1977.
- Lorange, P and Norman, D V, "How attitudes toward risk influence Investment Decisions", European Business, Spring, 1972.
- Mason, J I, "What Brand of Marketing Should we Market? The Search for Definitions", The Quarterly Review of Marketing, Winter 1980/81.
- Myers, B L and Melcher, A J, "On the choice of Risk Levels in Managerial Decision-Making", Management Science, vol. 16, Oct. 1969.
- McFarlane, D D and Horowitz, I, "Risk and the Business Decision", Business Horizons, Summer, 1967.
- Newall, J, "Industrial Buyer Behaviour; A Model of the Implications of Risk Handling Behaviour for Communication Policies in Industrial Marketing", European Journal of Marketing, vol. 11, No. 3, 1977.
- Nicosia, F M, "Perceived Risk, Information Processing, and Consumer Behaviour", Journal of Business, vol. 42, 1969.
- O'Leary, R and Iredale, I, "The Marketing Concept: Quo Vadis?", European Journal of Marketing, vol. 10, no. 3, 1976.
- Oliver, R, "The effect of Contract Conditions on Costs", Purchasing and Supply Management, July 1983.
- Parlett, D S (ed.), Construction Industry, U.K.; House Information Service Ltd., 1976.
- Payne, W J, "Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis", Organisational Behaviour and Human Performance, vol. 16, 1976.
- Pollatsek, A and Tversky, A, "A Theory of Risk", Journal of Mathematical Psychology, No. 7, 1970.

- Rapoport, A and Wallsten, T S, "Individual Decision Behaviour", Annual Review of Psychology, 1972.
- Robert, G M., "Motives in Industrial Buying", AMA Proceedings, Summer, 1960.
- Roselius, T, "Consumer Rankings of Risk Reduction Methods", Journal of Marketing, vol. 35, Jan. 1971.
- Sachs, W S and Benson, G, "Is it time to discard the Marketing Concept?", Business Horizons, vol. 21, no. 4, Aug. 1978.
- Sawyer, G A and Peter, J P, "The Significance of Statistical Significance Tests in Marketing Research", Journal of Marketing Research, May, 1983.
- Sheth, J N, "A Model of Industrial Buyer Behaviour", Journal of Marketing, vol. 37, Oct. 1973.
- Shreeve, W T, "Be prepared for political changes abroad", Harvard Business Review, July-Aug. 1984.
- Simmonds, K, "Marketing and Pricing under Competitive Bidding", Ph.D. Thesis, 1965. London Graduate School of Business.
- _____, "Adjusting Bias in Cost Estimates", Operational Research Quarterly, 19, 1968.
- _____, "Competitive Bidding - Deciding the Best Combination of Non-price Features", Operational Research Quarterly, 19, 1968.
- Shuler, J B, "Business Failures in Construction", Journal of Construction Division, ASCE, Sept. 1967.
- Spekman, R E and Stern, L W, "Environmental uncertainty and Buying Group Structure: An Empirical Investigation", Journal of Marketing, vol. 43, Spring, 1978.
- Stark, M.R., "Competitive Bidding: A Comprehensive Bibliography". Operations Research, vol. 19, no. 1, 1971.
- Swalm, R, "Utility Theory - Insight into Risk Taking", Harvard Business Review, Nov. Dec. 1966.
- Sweeney, T W et al, "An Analysis of Industrial Buyers' Risk-Reducing Behaviour: Some Personality Correlates". Proceedings of AMA, 1973.
- Taylor, W J, "The Role of Risk in Consumer Behaviour", Journal of Marketing, vol. 38, April, 1974.

Thompson, R S, "Diversification Strategy and Systematic Risk: An Empirical Inquiry", Managerial and Decision Economics vol. 5, no. 2, June, 1984.

Webster, F E, "Modeling the Industrial Buying Process", Journal of Marketing Research, vol. 2, Nov. 1965.

Wilson, D T, "Industrial Buyers' Decision-Making Styles", Journal of Marketing Research, vol. 8, Nov. 1971.

Woodroffe, G, "Buy-Law", Purchasing and Supply Management, July 1983.

Woolett, J, "Why are there so many failures in Construction", Building Technology and Management, Nov. 1979.